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of Transportation

**National Highway  
Traffic Safety  
Administration**

400 Seventh Street, S.W.  
Washington, D.C. 20590

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FRANKLIN RESEARCH CENTER

Division of Arvin/Calspan  
[REDACTED], New York 14225

FRC ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CASE NO. 90-16

FLEET - 1987 MERCEDES-BENZ 300DT

LOCATION - [REDACTED], NC

ACCIDENT DATE - [REDACTED], 1990

Contract No. DTNH22-[REDACTED]

Prepared for:

U.S. Department of Transportation  
National Highway Traffic Safety Administration  
Washington, D.C. 20590



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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

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# TECHNICAL REPORT STANDARD TITLE PAGE

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15. Supplementary Notes On-site investigation of an air bag deployment crash that involved a 1987 Mercedes-Benz that was equipped with the Supplemental Restraint System (SRS).					
16. Abstract This on-site investigative report focuses on a 1987 Mercedes-Benz 300DT that was involved in a head-on crash with a 1988 Nissan pickup truck. The frontal impact resulted in a CRASHPC generated velocity change of 26.8 mph that was sufficient ( $\Delta V$ threshold of 12 mph for system deployment) to activate the Supplemental Restraint System (SRS). The SRS consisted of a driver's side air bag and front seat belt emergency tensioning retractors.  The belted female driver of the Mercedes-Benz moved forward at impact and loaded the active belt webbing. Her belt loading resulted in a contusion of her anterior left shoulder, chest, and an abrasion of her abdominal area. Her left knee struck the knee bolster which deformed the bolster to a depth of 2.4". No injury resulted from the left knee contact. The driver's face loaded the deployed air bag which displaced her plastic framed eyeglasses. The glasses produced two small lacerations of her forehead area. The bag loading resulted in a nose bleed and nasal swelling. The driver also sustained multiple dislocation fractures of the metatarsals from the intruding toe pan. She subsequently rebounded into the seat-back which resulted in a compression fracture of C <sub>6</sub> and a spinal cord injury which caused partial paralysis of her upper extremities. The driver was transported to a hospital where she was admitted for treatment and physical therapy.					
17. Key Words Left frontal impact Supplemental Restraint System System activation AIS-4 injury			18. Distribution Statement  General Public		
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## TABLE OF CONTENTS

	<u>Page No.</u>
Summary	1
Accident Schematic	3
Accident Data	5
Ambience	5
Highway	5
Traffic Controls	6
Vehicles	6
Vehicle Damage	7
Vehicle Velocity Estimates	9
Collision Sequence	9
Human Factors/Occupant Data	11
Air Bag Driver Injuries	12
Air Bag Driver Kinematics	13
On-Scene Newspaper Photographs	14
Selected Prints	17
Slide Index	21
Appendix A: Police Accident Report	23
Appendix B: CRASHPC Output	28
Appendix C: Air Bag Supplement	31
Appendix D: NASS Vehicle Forms	38
Appendix E: NASS Occupant Forms	60

# FRANKLIN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

FRC CASE NO. 90-16

FLEET - 1987 MERCEDES-BENZ 300DT  
LOCATION - [REDACTED], N.C.

## SUMMARY

This crash occurred on a rural two-lane roadway in [REDACTED], N.C. on [REDACTED], 1990, at 0731 hours. A 1987 Mercedes-Benz 300DT, 4 door sedan, was traveling in a northerly direction at a driver estimated speed of 50-55 mph. The Mercedes was equipped with the Supplemental Restraint System (SRS) that consisted of a driver air bag module and emergency tensioning retractors (ETRs) in the front 3-point active belt systems. The Mercedes was traveling behind a Chevrolet Citation when a southbound Nissan pickup crossed the centerline and sideswiped the left side area of the Chevrolet. The pickup truck continued forward in the northbound lane. The driver of the Mercedes braked and steered onto the right (east) shoulder in an attempt to avoid impact.

The frontal area of the Nissan pickup truck impacted the left frontal area of the Mercedes in an offset, head-on configuration. The Mercedes sustained 33.75" of crush at the left corner of the bumper reinforcement bar from the 12 o'clock direction of force impact (PDOF: -15°). A velocity change of 26.8 mph was computed by the damage algorithm of the CRASHPC program. As a result of the impact induced deceleration, the Mercedes' SRS system deployed.

The driver of the Mercedes was a 43-year-old female, 65", 120 lbs. She was fully restrained by the active 3-point lap and shoulder belt system. Restraint usage was supported by cutting of the belt webbing during extrication of the driver and by belt induced injuries to the driver.

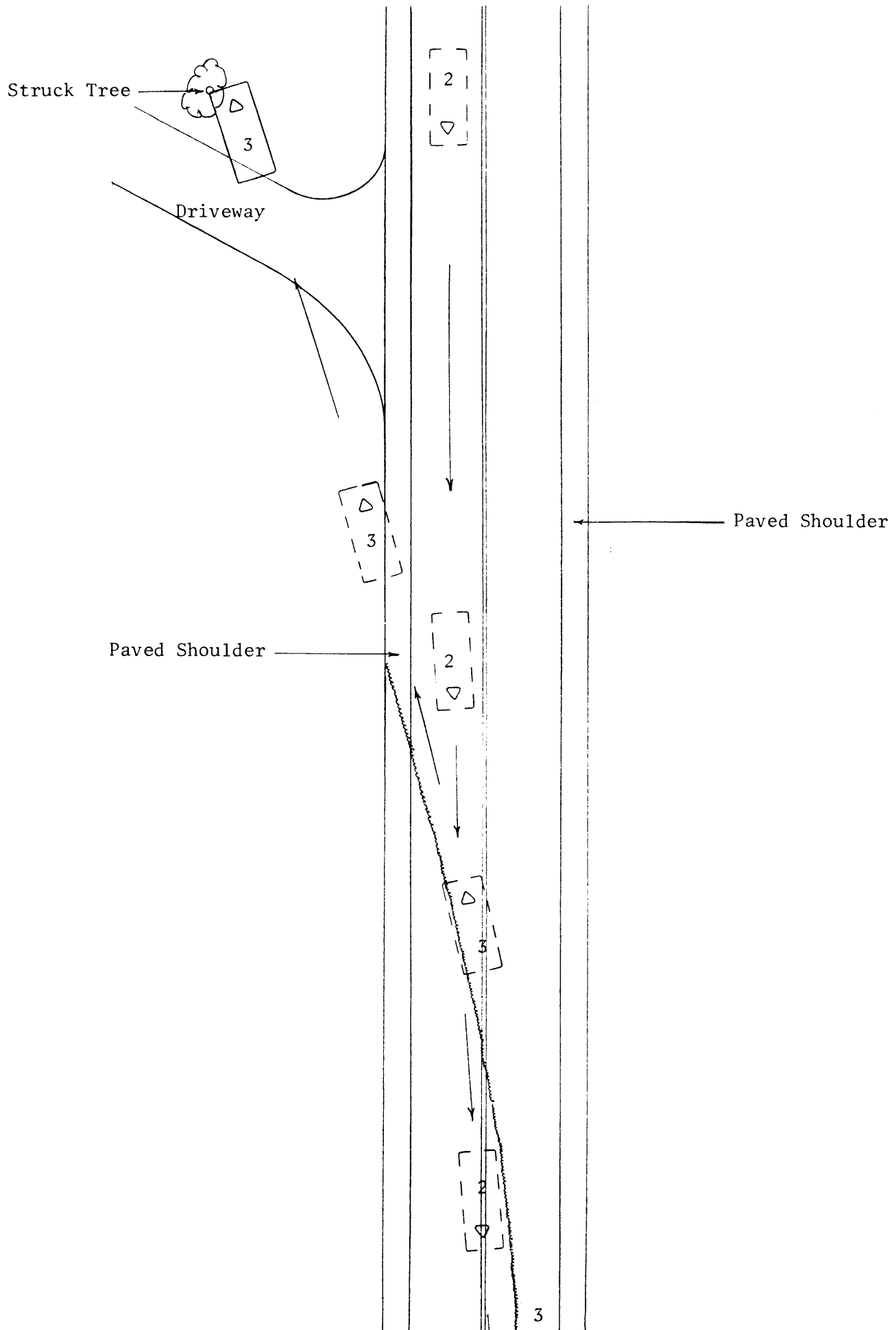
At impact, she moved forward and loaded the active belt webbing which resulted in contusions (AIS-1) of her left anterior shoulder, and mid chest area. She also sustained an abrasive type injury (AIS-1) of her lower abdominal area from lap belt loading. Her left knee contacted the padded knee bolster which deformed the bolster to a depth of 2.4" over an 8" diameter area. The contact was centered 18" left of center. No injury occurred from the left knee loading. She sustained multiple dislocation fractures (AIS-3) bilaterally of her metatarsals from the intruding toe pan. The driver's face contacted the center portion of the deployed air bag which prevented her from direct contact with the steering assembly. The air bag displaced her plastic framed eyeglasses which lacerated her forehead (AIS-1) immediately above the eyebrow area. She also sustained a nose bleed from bag contact. Her facial contact with the air bag was evidenced by lipstick and makeup transfers located 2" above the horizontal centerline of the bag and 2" right of its vertical centerline. The driver also sustained a contusion of her left elbow (AIS-1) from probable contact with the left door area. She rebounded into the left front seat-back and head restraint. Her head probably rotated over the seat-back resulting in compression fracture/dislocation (AIS-3) of C<sub>6</sub> with a spinal cord injury (AIS-4) that resulted in paralysis of her upper extremities. There was no evidence of contact to the head restraint or left B-pillar area.

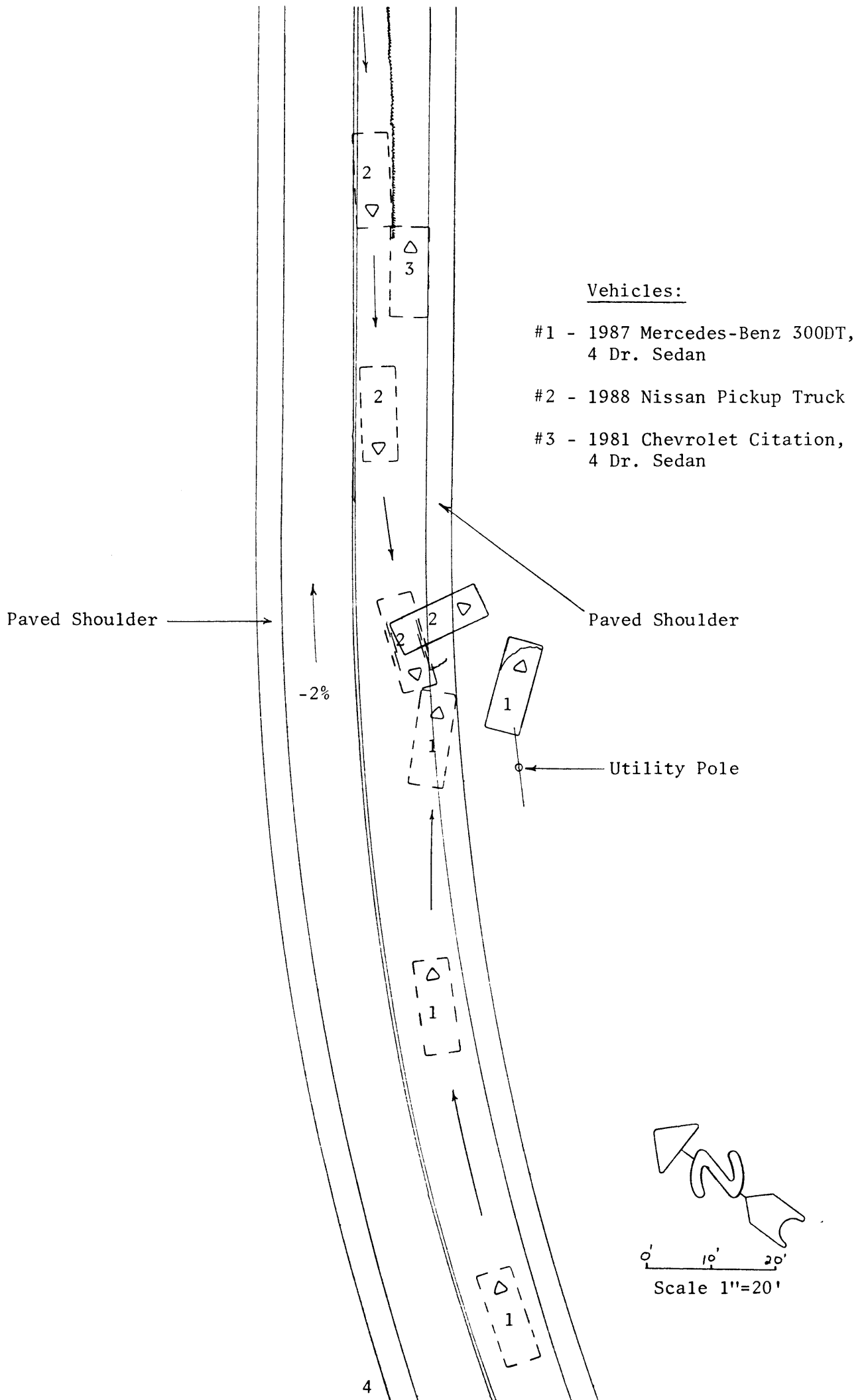
Rescue personnel forced open the left front door and cut the windshield from the vehicle to initially treat and remove the driver from the vehicle. She was transported to a [REDACTED] for initial diagnosis then transferred to the [REDACTED] Medical Center in [REDACTED], TN for treatment and physical therapy. She will probably remain hospitalized until the end of [REDACTED], 1990.

The passenger compartment of the Mercedes was reduced in size by intrusion of numerous components. The left A-pillar and instrument panel were displaced rearward 8.5". The left toe pan was displaced 15.75" into the driver's compartment. Exterior and interior deformation displaced the steering column rearward 2.5" and rotated it upward approximately 5".

The 23-year-old driver of the Nissan pickup truck was reportedly restrained by the active 3-point lap and shoulder belt system. He loaded the belt webbing and the intruding steering column that resulted in internal abdominal injuries. He was admitted to a [REDACTED] for treatment of his injuries.

Accident Schematic  
FRC Case No. 90-16







FRANKLIN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

FRC CASE NO. 90-16

FLEET - 1987 MERCEDES-BENZ 300DT  
LOCATION - [REDACTED], N.C.

ACCIDENT DATA

Location: State route  
City/Township: [REDACTED], N.C.  
Area/Type: Rural/Undeveloped  
Accident Date/Time: [REDACTED], 1990, 0730 hours  
Investigating Police Department: [REDACTED]  
Accident Type: Car/Pickup truck, head-on configuration  
Air Bag Vehicle  
Occupant Injury Severity: Severe (AIS-4)

AMBIENCE

Viewing Conditions: Daylight  
Weather: Clear  
Precipitation: None  
Road Surface: Dry

HIGHWAY

Type: State route  
Number of Lanes: 2  
Width: 22'5"  
Surface: Asphalt  
Median: None  
Edge: East edge - 4' paved shoulder  
West edge - 4' paved shoulder

### HIGHWAY (CONT'D.)

Vertical Alignment:	2% grade, negative to the north
Horizontal Alignment:	Right curve
Estimated Coefficient of Friction:	Moderate

### TRAFFIC CONTROLS

Signals:	None
Signs:	No pertinent signs
Markings:	Yellow full barrier centerlines, solid white edge lines
Speed Limit:	55 mph

### VEHICLES

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Description:	1987 Mercedes-Benz 300DT, 4 dr. sedan	1988 Nissan long bed pickup truck
V.I.N.:	WDBEB33D5 [REDACTED]	1N6HD12H1JC (production number deleted)
Color:	Silver	
Odometer:	72,723 miles	
Engine:	3.0 liter turbo diesel	
Transmission:	4-speed automatic overdrive, console mounted transmission selector lever	
Steering:	Power assisted	
Brakes:	Power assisted 4-wheel disc with anti-lock (ABS)	
Padding:	Upper, mid, and lower instrument panel, knee bolster, soft edged steering wheel rim, door panels, door armrests, adjustable head restraints, folddown center armrest	

VEHICLES (CONT'D.)

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Active Restraints:	3-point lap and shoulder belts in the four outboard seated positions, center rear lap belt	
Passive Restraints:	Supplemental Restraint System (SRS) which included a driver's side air bag and emergency tensioning retractors (ETRs) in the front 3-point seat belt systems. The SRS activated as a result of the head-on impact sequence with vehicle #2	
Defects:	None	
Tow Status:	Towed due to damage	Towed due to damage

Vehicle #3

Description:	1981 Chevrolet Citation, 4 dr. hatchback
V.I.N.:	1G1AX685CB6 (production number)
Tow Status:	Towed due to damage

VEHICLE DAMAGE

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Exterior:	<p>The frontal area of the Mercedes-Benz sustained severe damage from its impact with vehicle #2. Direct contact damage began at the left front corner and extended 31" to the vehicle's right. The impact displaced the entire frontal area of the vehicle resulting in a combined induced and direct contact damage length of 41". Maximum crush was 33.75" located at the left corner of the bumper reinforcement bar. Crush values measured at the reinforcement bar were as follows: C<sub>1</sub>=33.75", C<sub>2</sub>=20.25", C<sub>3</sub>=14.5", C<sub>4</sub>=6.5", C<sub>5</sub>=1.875", C<sub>6</sub>=1.0".</p>	<p>Primary - The frontal area of the Nissan pickup truck sustained severe damage from its head-on impact sequence with the Mercedes-Benz. Although the vehicle was not inspected, the crush profile was estimated as follows: C<sub>1</sub>=42", C<sub>2</sub>=36", C<sub>3</sub>=30", C<sub>4</sub>=18", C<sub>5</sub>=12", C<sub>6</sub>=8".</p> <p>Secondary - The left front corner initially sideswiped the left side of vehicle #3. The damage was overlapped by the primary impact damage from the air bag vehicle.</p>

VEHICLE DAMAGE (CONT'D.)

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>	
Exterior (Cont'd.):	<p>Components damaged by the crash included the front bumper facia and filler panel, grille, hood, both headlight assemblies, left front fender, left A-pillar, roof, left front door and the unibody chassis.</p> <p>The left wheelbase was reduced in size by 21.7" while the right was lengthened by 1.0".</p>		
CDC:	12-FYEW-3	Primary - 01-FDEW-4 Secondary - 12-FLEE-3 (estimated)	<u>Object Struck</u> Air Bag Vehicle Vehicle #3
Repair Cost:	Total loss	Total loss	
Interior (Air Bag Vehicle):	<p>The interior of the Mercedes-Benz was reduced in size by intrusion of numerous components. Maximum intrusion involved 15.7" of rearward displacement of the left toe pan. Additional intrusions involved rearward displacement of the left lower A-pillar and left instrument panel (8.5"). The steering column was displaced rearward 2.5" while it rotated upward and to the left approximately 1.5". The compression of the left passenger compartment displaced the rear floor pan upward 4.5" on the left and 3.0" on the right side.</p> <p>The driver's left knee contacted the intruding knee bolster 14-22" left of the vehicle's centerline. The 8" diameter contact deformed the padded component to a depth of 2.4". Her face loaded the deployed air bag near the center of the bag. A lipstick transfer was located on the air bag .75" - 3" right of center and 1.75" - 3.5" above the horizontal centerline. A 6" diameter makeup transfer surrounded the lipstick transfer. The air bag contact caused a nose bleed to the driver which resulted in a large blood stain to the lower left quadrant of the air bag. The driver rebounded into the seatback and head restraint; however, no damage or contact evidence was visible to these components.</p>		

## VEHICLE VELOCITY ESTIMATES

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Travel Speed:	50-55 mph	Unknown
Impact Speed:	Unknown	Unknown
Total $\Delta V$ :	26.8 mph	33.4 mph
Longitudinal $\Delta V$ :	-25.9 mph	-30.3 mph
Lateral $\Delta V$ :	6.9 mph	-14.1 mph

## COLLISION SEQUENCE

Pre-Crash: The 1987 Mercedes-Benz 300DT was traveling in a northerly direction on the state route at a driver estimated speed of 50-55 mph. She was traveling behind vehicle #3 (1981 Chevrolet Citation) as the vehicles entered a long right curve. Vehicle #2, the Nissan pickup truck, was proceeding in a southerly direction as it approached the curve. The driver of the truck reportedly fell asleep as his vehicle drifted across the centerline of the roadway.

The left front corner area of the Nissan pickup sideswiped the left side area of vehicle #3 in the northbound travel lane. The impact damaged the left front tire and wheel of vehicle #3 as it continued in a tracking orientation across the southbound travel lane.

The Nissan pickup truck continued forward in a tracking orientation in the northbound travel lane. The driver of the Nissan apparently noted the air bag vehicle and braked with sufficient force to lock the wheels of his vehicle as it skidded to impact (at the time of FRC's scene inspection, there were 8' of pre-impact skid marks still showing on the road surface).

The driver of the Mercedes-Benz noted the Nissan pickup truck as it entered her lane of travel. She initially thought the vehicle was passing a slower moving southbound vehicle and would reenter his lane of travel. As the Nissan continued to travel in the northbound lane, the driver of the Mercedes steered her vehicle onto the right shoulder and braked in an attempt to avoid impact.

## COLLISION SEQUENCE (CONT'D.)

**Crash:** The center frontal area of the Nissan pickup truck impacted the left frontal area of the Mercedes-Benz in an offset, head-on configuration. Resultant directions of force were within the 12 o'clock sector (PDOF  $-15^{\circ}$ ) for the Mercedes-Benz and within the 1 o'clock sector (PDOF  $+25^{\circ}$ ) for vehicle #2. The damage mode of the CRASHPC program computed a velocity change of 26.8 mph for the Mercedes and 33.4 mph for vehicle #2 using an estimated crush profile for the Nissan pickup truck. The crash induced deceleration was well above the required threshold for the Mercedes-Benz SRS, therefore the driver air bag deployed and the emergency tensioning retractor tightened the seat belt webbing.

As the vehicle crushed to maximum engagement, the impact force deflected the Mercedes-Benz forward and to its right. The Mercedes' forward velocity rotated the Nissan pickup truck in a counterclockwise direction and displaced its center of gravity approximately 4 ft. rearward.

### **Post-Crash:**

**Final Rest -** The Mercedes-Benz came to rest on the grassy area that bordered the east shoulder. At rest the vehicle was facing in a north-easterly direction approximately  $6-10^{\circ}$  clockwise of its at-impact position. The vehicle traveled approximately 16 ft. from impact to final rest.

Vehicle #2 was displaced rearward from its impact position and rotated approximately  $98^{\circ}$  in a counterclockwise direction. At rest, the Nissan was facing in a southeasterly direction with its center of gravity resting over the east edge line of the roadway.

Vehicle #3 traveled approximately 225 ft. as it departed the roadway and impacted a tree located 30 ft. from the west road-edge.

**Driver Activities -** The drivers of the Mercedes-Benz and the Nissan pickup truck sustained serious injury and remained in their vehicles following the crash. The driver of vehicle #3 was not seriously injured and was able to exit her vehicle unassisted.

**Police Activities -** The [REDACTED] Police were notified of the crash and dispatched a patrol unit to the scene. The officer initiated his investigation and subsequently charged the driver of vehicle #2 with driving left of the centerline.

**Rescue Activities -** The local volunteer fire and rescue squad responded to the accident scene and initiated emergency treatment for the drivers of the Mercedes-Benz and the Nissan pickup truck. The drivers were removed from their vehicles and transported to local hospitals for treatment of their injuries. The driver of the Mercedes was transferred to a [REDACTED] in [REDACTED], TN for additional treatment and long term physical therapy.

# COLLISION SEQUENCE (CONT'D.)

## Post-Crash (Cont'd.):

Scene                    The Mercedes-Benz and the Nissan pickup truck sustained severe  
Clearance -            damage and were towed from the scene. Vehicle #3 reportedly  
                         sustained moderate damage and was also towed from the scene.

## HUMAN FACTORS/OCCUPANT DATA

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Driver:	43 year old female	25 year old male
Height:	65"	
Weight:	120 lbs.	
Active Restraint System Usage:	3-point lap and shoulder belt	3-point lap and shoulder belt
Usage Source:	Vehicle inspection, police report, driver injury data	Police report
Eyeglasses:	Plastic framed prescription eyeglasses, displaced from face, not damaged	
Vehicle Familiarity:	3 years	
Route Familiarity:	Daily	
Trip Plan:	En route to work	
Manner of Leaving Scene:	Ambulance	Ambulance
Type of Medical Treatment:	Initially transported to a [REDACTED] for stabilization, then transferred to a major [REDACTED] where she was admitted for treatment and physical rehabilitation	Admitted to a [REDACTED] [REDACTED] for treatment of abdominal injury
Length of Hospitalization:	15 days	
Length of Physical Rehabilitation:	Projected through [REDACTED] 1990	

## DRIVER INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
Spinal cord injury (central cord lesion) with paralysis of the upper extremities	Severe (NPUC-4)	Rebound contact into seatback and head restraint (Probable)
Compression fracture/dislocation of C <sub>6</sub> cervical vertebrae with a fracture of the pedicle extending into the transverse process	Serious (NPZV-3)	Rebound contact into seatback and head restraint (Probable)
Multiple dislocated Lisfranc's fractures of the metatarsals, bilaterally	Serious (QLZJ-3, QRZJ-3)	Intruding toe pan
Left anterior shoulder contusion	Minor (SLCI-1)	Shoulder belt webbing
Mid chest contusion	Minor (CCCI-1)	Shoulder belt webbing
Abdominal abrasion	Minor (MIAI-1)	Lap belt webbing
Left elbow contusion	Minor (ELCI-1)	Left door panel (Probable)
Bilateral eye contusions (raccoon eyes)	Minor (FLCO-1, FRCO-1)	Eyeglasses/air bag
2 small lacerations of the center forehead area located directly above the eyebrows	Minor (FSLI-1)	Eyeglasses/air bag
Right knee abrasion	Minor (KRAI-1)	Knee bolster
Swelling of the bridge of the nose with epistaxis (nose bleed)	N/A	Eyeglasses/air bag



## DRIVER KINEMATICS

The 43 year old female driver of the Mercedes-Benz was in a normal seated position at impact, evidenced by her trajectory and contact points. She was wearing the active 3-point lap and shoulder belt system. Belt usage was supported by occupant injury data (seat belt contusions), locking of the belt retractor from the ETR, and cutting of the webbing by rescue personnel.

At impact, the driver was thrust forward and initially loaded the active belt webbing. The emergency tensioning retractor had activated and reeled the slack out of the belt webbing. Her loading force on the webbing resulted in a contusion of her anterior left shoulder, mid chest area and an abrasion of her lower abdomen. There was no evidence of occupant loading on the belt webbing or hardware. The driver's left knee contacted the intruding knee bolster. Her contact with the bolster deformed an 8" area of the bolster to a maximum depth of 2.4". The center of the bolster contact was 18" left of the vehicle's centerline. Her right knee also struck the knee bolster; however, no damage occurred. Her only injury from bolster contact was an abrasion of the right knee.

The driver's face loaded the center area of the deployed (tethered) air bag. Contact evidence consisted of a lipstick transfer located 1.75" - 3.5" above the horizontal centerline and .75" - 3" right of the vertical centerline. The lipstick transfer was surrounded by a 6" diameter makeup transfer. The air bag contact displaced the driver's eyeglasses which resulted in 2 small lacerations of her forehead, directly above her eyebrows. The air bag/eyeglass contact also resulted in swelling of the bridge of the driver's nose, epistaxis (nose bleed), and bilateral eye contusions. Her eyeglasses were not damaged by the contact sequence.

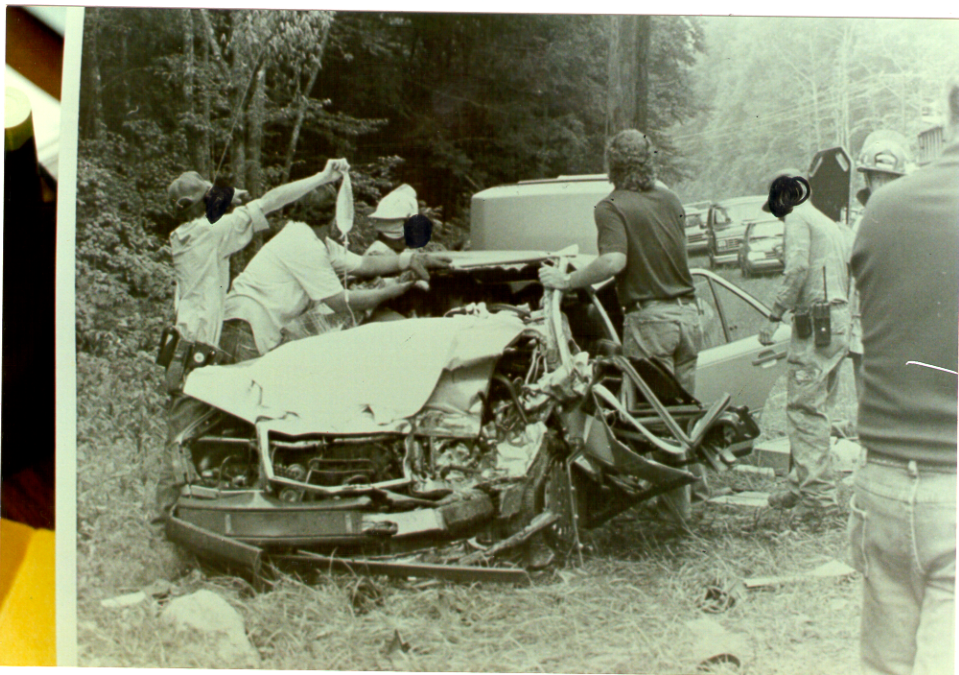
The left toe pan intruded approximately 15.75" rearward into the driver compartment. Driver foot contact with the intruding sheetmetal and/or foot controls resulted in multiple dislocated Lisfranc's fractures bilaterally of her metatarsals. The driver also sustained a left elbow contusion from probable contact with the left door panel. No evidence of contact was visible on the door panel.

The driver rebounded into the left front seatback and head restraint. The posterior aspect of her neck contacted the seatback as her head rotated over the seatback resulting in a compression fracture/dislocation of the 6th cervical vertebrae with a fracture of the pedicle that extended into the transverse process. The contact also resulted in a spinal cord injury (central cord lesion) with paralysis of the upper extremities. There was no damage or contact evidence to the struck components.

The driver was removed from her vehicle on a backboard and transported to a local hospital where her injuries were diagnosed. She was transferred to a [REDACTED] center in [REDACTED], TN for additional treatment, recovery, and physical therapy. Her stay at the rehabilitation hospital is expected to extend to the end of [REDACTED] 1990.



Final Rest Positions Of The Mercedes-Benz and Vehicle #2



Final Rest Position And Damage To The Mercedes-Benz





Left Side View Of The Mercedes-Benz At Final Rest



Frontal View Of The Damaged Pickup Truck



Post-Crash Trajectory Of Vehicle #3



Final Rest Position Of Vehicle #3



SELECTED PRINTS



Frontal View Of The Mercedes-Benz



Left Front Three-Quarter View





Perpendicular View Of The Left Frontal Area Showing  
The Extent Of Crush

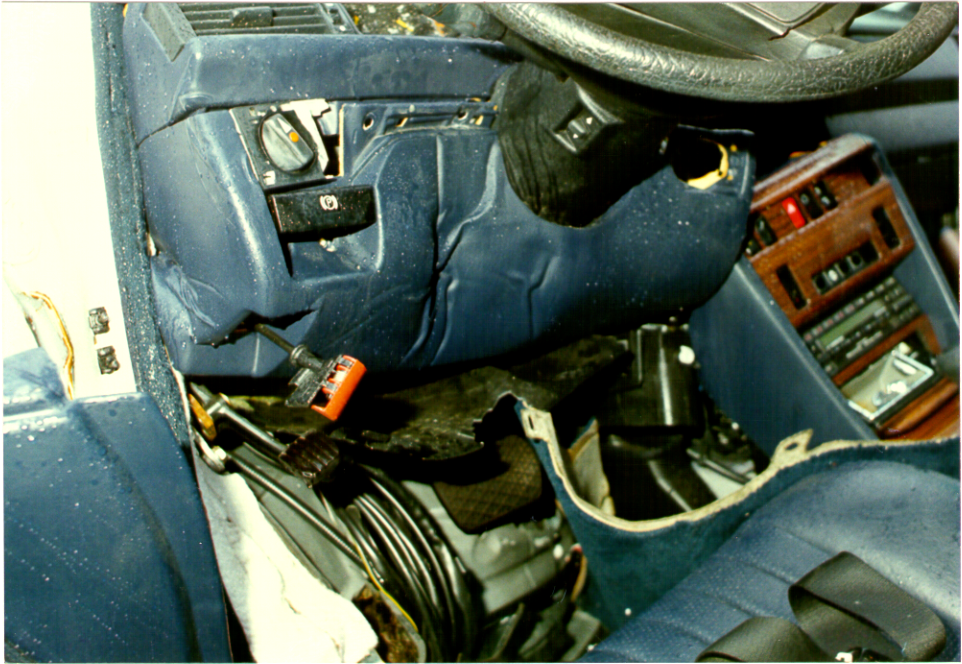


Interior View And The Deployed Air Bag





Lipstick And Makeup Transfers On The Deployed Air Bag



Driver Left Knee Contact To Knee Bolster



## SLIDE INDEX

<u>Slide No(s).</u>	<u>Description</u>
1	Accident schematic
2	Air bag driver injury mannequin
3,4	Pre-crash trajectory of the Mercedes-Benz
5	Point of impact with vehicle #2
6	Final rest positions of the Mercedes and vehicle #2
7-11	Pre-crash trajectory of vehicle #2
12	Vehicle #2's heading at impact with the Mercedes
13-15	Trajectory of vehicle #3 to final rest
16	Lookback view of vehicle #3's trajectory
17	Frontal view of the Mercedes
18	Longitudinal view of the Mercedes
19	Left front three-quarter view
20,21	Perpendicular views showing the extent of crush
22	Rearward displacement of the left front axle position
23	Left side view of the Mercedes
24	Right rear three-quarter view
25	Right front three-quarter view
26	Right perpendicular view showing the extent of frontal crush
27	Left A-pillar V.I.N. plate
28	Left B-pillar identification plates
29	Perpendicular view showing rearward displacement of the left A-pillar and instrument panel
30,31	Overall interior views from the left door area

SLIDE INDEX  
(CONT'D.)

<u>Slide No(s).</u>	<u>Description</u>
32	Left knee contact to the knee bolster
33	Left toe pan intrusion
34	Instrument panel/console displacement
35	Deployed driver air bag
36	Lipstick and makeup transfers to center area of air bag
37	Blood stain at lower left quadrant of air bag
38	Driver's seat and cut active belt webbing
39	Deformed left door panel

Struck Tree

Driveway

Fixed Shoulder

Fixed Shoulder

Fixed Shoulder

Fixed Shoulder

Vehicles:

- #1 - 1987 Mercedes-Benz 300T, 4 Dr. Sedan
- #2 - 1988 Nissan Pickup Truck
- #3 - 1981 Chevrolet Citation, 4 Dr. Sedan

Utility Pole

65625

UNIDENTIFIED  
AND S-N



2 small lacerations of the forehead (AIS-1), eyeglasses/air bag

Swelling of the bridge of the nose with epistaxis (AIS-0), eyeglasses/airbag

AGE 43  
SEX Female  
WT. 65 lbs.  
HT. 120"

Spinal cord injury (central cord lesion) with paralysis of the upper extremities (AIS-4), rebound contact into seat-back

Bilateral eye contusions (AIS-1), eyeglasses/air bag

Mid-chest contusion (AIS-1), shoulder belt contusions

Compression fracture/dislocation of C-6 with a fracture of the pedicle that extends into the transverse process (AIS-3), rebound contact into seat-back

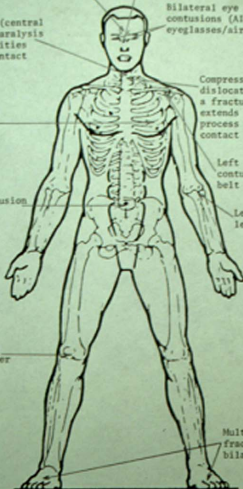
Abdominal wall contusion (AIS-1), lap belt webbing

Left anterior shoulder contusion (AIS-1), shoulder belt contusions

Left elbow contusion (AIS-1), left door panel

Right knee abrasion (AIS-1), knee bolster

Multiple dislocated Lisfranc's fractures of the metatarsals, bilaterally



































































ETR / DRIVER-AIR



BAG

WCS

MFD BY DAIMLER - BENZ AG. STUTTGART

GVWR 1770 LBS GROSS WT 1770 LBS

GVW 1770 LBS GROSS WT 1770 LBS

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR  
VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS  
IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

VIN [REDACTED] PASSENGER CAR

Ⓜ MERCEDES - BENZ · MADE IN GERMANY Ⓜ



























APPENDIX A

Police Accident Report

LOCATION	Date: <u>1990</u> Day of Week: <u>          </u> Time: <u>0730</u> (24 Hour Clock)		Local Use		Do not write in these spaces DMV Report No.:	
	Accident Occurred in <u>          </u> County <input type="checkbox"/> In <u>          </u> Incorporated City or Town of <u>          </u> Outside City or Town <u>3.6</u> Miles <input type="checkbox"/> N <input type="checkbox"/> S <input type="checkbox"/> E <input type="checkbox"/> W <input type="checkbox"/> of City or Town Limits		Patrol Area <u>1</u>		Date Received by DMV: <u>          </u> 1990	
	on <u>NC-</u> Highway Number (i.e., U.S., N.C., R.P., R.U.). If within corporate limit or no highway number, identify by street name. If ramp or service road, indicate on line. RR Crossing No.: <u>          </u> <u>3</u> Miles <input type="checkbox"/> N <input checked="" type="checkbox"/> S <input type="checkbox"/> E <input type="checkbox"/> W from <u>NC-</u> (N.) toward <u>RU</u> (0 ft. if intersec.) Use Highway Number, Street Name, or Adjacent County or State Line Use Highway Number, Street Name, Incorporated Town, or Adjacent County or State Line					

ACCIDENT SEQUENCE	1. VEHICLE MANEUVER/PEDESTRIAN ACTION		2. ACCIDENT TYPE				3. OBJECT STRUCK AND 4. DISTANCE			
	Veh 1	Veh. 2 or Ped.	FIRST HARMFUL EVENT	MOST HARMFUL EVENT: Repeat Code if same as for FIRST HARMFUL EVENT			Vehicle 1		Vehicle 2	
	4	4	21	21	21	21	1	8	6	7

No. of Units Involved: <u>3</u> Driver: <u>          </u> First <u>          </u> Middle <u>          </u> Last Name <u>          </u> Address: <u>          </u> City: <u>          </u> State: <u>NC</u> Zip Code: <u>          </u> Same Address as on Driver's License? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Driver's License? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Race: <u>M</u> Sex: <u>M</u> Lic. No.: <u>          </u> State: <u>NC</u> Date of Birth: <u>65</u> Specify Restriction: <u>          </u> Veh. Year: <u>88</u> Month <u>          </u> Day <u>          </u> Year <u>          </u> Veh. Make: <u>Miss</u> Veh. Type: <u>T-2A</u> Tlr. Type: <u>n/a</u> S-Tlr.: 1. Length <u>          </u> Ft. Width <u>          </u> In. Axles <u>          </u> 2. Length <u>          </u> Ft. Width <u>          </u> In. Axles <u>          </u> Hazardous Material <input type="checkbox"/> Spilled? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Commercial Vehicle <input type="checkbox"/> Lic. Plate No: <u>          </u> State: <u>NC</u> Year: <u>91</u> VIN: <u>1N6HD13H12C</u> Owner: <u>          </u> Address: <u>          </u> City: <u>          </u> State: <u>NC</u> Zip Code: <u>          </u> (Parts TAD Damaged): <u>ED-6</u> Estimated Damage: \$ <u>3500.00</u> Vehicle Drivable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Post Crash Fire? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Removed to: <u>          </u> By: <u>Wrecker</u> Authority: <u>Rotation</u>	<input checked="" type="checkbox"/> VEHICLE NO. 2 <input type="checkbox"/> PEDESTRIAN <input type="checkbox"/> OTHER <input type="checkbox"/> HIT & RUN Driver: <u>          </u> First <u>          </u> Middle <u>          </u> Last Name <u>          </u> Address: <u>          </u> City: <u>          </u> State: <u>NC</u> Zip Code: <u>          </u> Same Address as on Driver's License? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Driver's License? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Race: <u>M</u> Sex: <u>M</u> Lic. No.: <u>          </u> State: <u>NC</u> Date of Birth: <u>53</u> Specify Restriction: <u>          </u> Veh. Year: <u>91</u> Month <u>          </u> Day <u>          </u> Year <u>          </u> Veh. Make: <u>Chen</u> Veh. Type: <u>P</u> Tlr. Type: <u>n/a</u> S-Tlr.: 1. Length <u>          </u> Ft. Width <u>          </u> In. Axles <u>          </u> 2. Length <u>          </u> Ft. Width <u>          </u> In. Axles <u>          </u> Hazardous Material <input type="checkbox"/> Spilled? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Commercial Vehicle <input type="checkbox"/> Lic. Plate No: <u>          </u> State: <u>NC</u> Year: <u>91</u> VIN: <u>1B1AX685CB6</u> Owner: <u>Same as Driver</u> Address: <u>          </u> City: <u>          </u> State: <u>NC</u> Zip Code: <u>          </u> (Parts TAD Damaged): <u>LD-3/FL-2</u> Estimated Damage: \$ <u>2500.00</u> Vehicle Drivable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Post Crash Fire? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Removed to: <u>Body Shop Newland</u> By: <u>Wrecker</u> Authority: <u>Rotation</u>
---	--

Other Property Damaged: <u>none</u>	Estimated Damage: <u>\$ -0-</u>	Owner Name: <u>          </u> Address: <u>          </u>
-------------------------------------	---------------------------------	---

**INJURY SECTION INSTRUCTIONS:** Give Injury Class, Belt/Helmet Usage, Race/Sex and Age of all occupants in the space corresponding to the seat occupied (see codes at bottom). Names and addresses are necessary for persons who were injured.

Seat	Inj. Cl.	Belt/Hel.	Race Sex	Age	Injured Names and Addresses		Seat	Inj. Cl.	Belt/Hel.	Race Sex	Age	Injured Names and Addresses	
Left Front	A	3	W	25	DRIVER 1		Left Front	B	3	F	35	DRIVER 2, PEDESTRIAN, OTHER	
Center Front							Center Front						
Right Front							Right Front						
Left Rear							Left Rear						
Center Rear							Center Rear						
Right Rear							Right Rear						

Total Number Occupants: <u>1</u>	Total Number Injured: <u>1</u>	Total Number Occupants: <u>1</u>	Total Number Injured: <u>1</u>
----------------------------------	--------------------------------	----------------------------------	--------------------------------

Ambulance Requested? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Ambulance Arrived At: <u>0738</u> (24 Hour Clock)
--	---

Injured Taken To: <u>Hospital, NC</u>	Injured Taken To: <u>Hospital, NC</u>
---------------------------------------	---------------------------------------

(Treatment Facility and City or Town)

K—Killed

A—Incapacitating (injury obviously serious enough to prevent carrying on normal activities for at least 24 hours, e.g., massive loss of blood, broken bone)

B—Nonincapacitating (injury other than K or A evident at the scene)

C—No visible sign of injury but complaint of pain or momentary unconsciousness

O—No injury

## Injury Class

## Belt/Helmet

1. None or not used
2. Lap only
3. Lap and shoulder
4. Child restraint system
7. If motorcycle, Helmet in use
9. Unable to determine

<b>Vehicle 1</b> Airbags <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Deployed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Vehicle 2</b> Airbags <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Deployed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	---

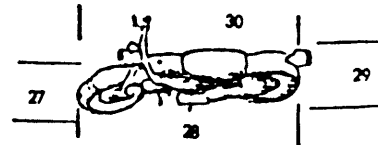
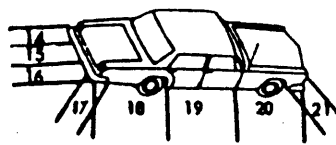
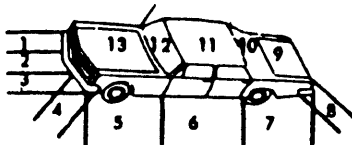


POINT(S) OF INITIAL CONTACT  
Write in Codes

VEH. 1	VEH. 2
1	45
2	6
3	7

ROLLOVER  
☐ Yes ☒ No

CROSSED MEDIAN  
☐ Yes ☒ No

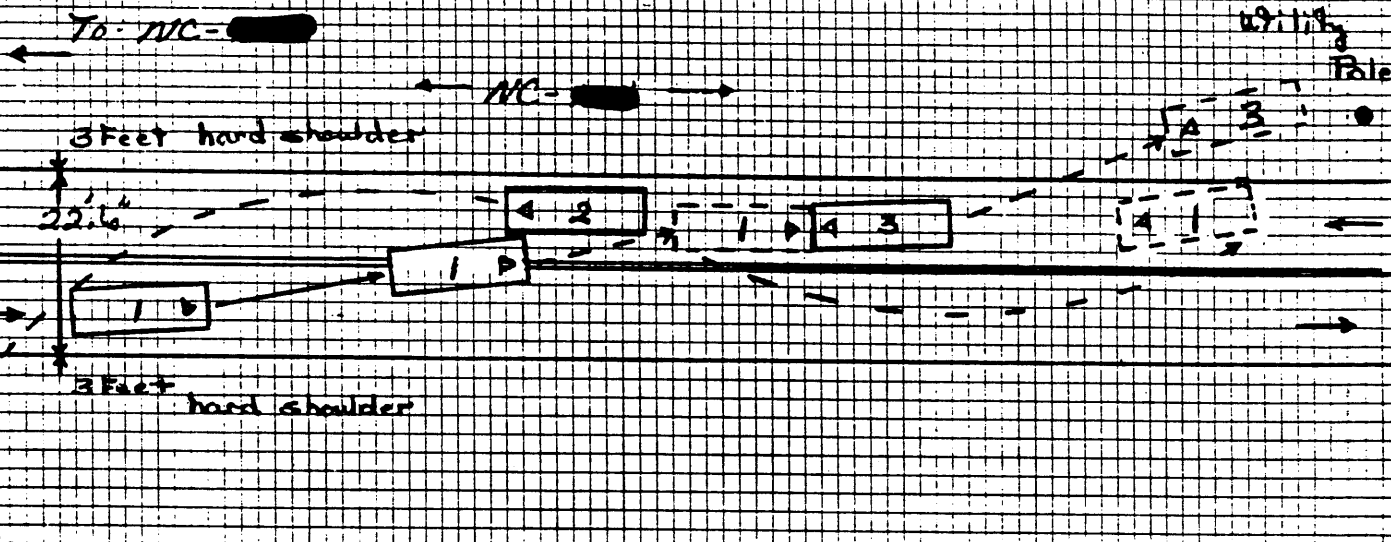


Underneath:  
22. Front  
23. Center  
24. Rear  
25. Unknown

Motorcycle  
Bicycle or  
Moped

O. No Contact

ROADWAY INFORMATION				DRIVER 1	DRIVER 2 OR PED.	VEH. 1	VEH. 2
1. Locality	1	8. Road Surface	3				
2. Development Type	1	9. Road Defects	7	14. Vision Obstruction	1	18. Vehicle Defects	8
3. Road Feature	14	10. Road Condition	1	15. Physical Condition	1	19. Speed Limit (for each vehicle)	55
4. Road Character	1	11. Light Condition	1	16. Intoxication	1	20. Estimated Original Traveling Speed	55
5. Road Class	3	12. Weather	1	17. Chemical Test	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Refused	21. Estimated Speed at Impact	55
6. Number of Lanes	2	13. Traffic Control	11	Given	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Refused	22. Tire Impressions Before Impact (ft.)	0
7. Road Configuration	2	Operating <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Visible <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				23. Distance Traveled After Impact (ft.)	73' 225'



Vehicle 1 was Traveling ☐ N ☒ S ☐ E ☐ W on NC

Vehicle 2 was Traveling ☒ N ☐ S ☐ E ☐ W on NC

DESCRIBE WHAT HAPPENED:

Vehicle #1 was traveling south on NC. Vehicle #2 & #3 were traveling north on NC. Vehicle #1 traveled left of center and collided with vehicle #2. Vehicle #1 continued on and collided with vehicle #3. - Vehicle #1 came to rest in the roadway (northbound travel lane) 73 feet from the 1st contact with vehicle #2. - Vehicle #2 came to rest 225 feet from point of impact, coming to rest after colliding with a tree. Vehicle #3 came to rest on the northbound shoulder of the roadway.

WIT- Name none Address \_\_\_\_\_ Phone No. \_\_\_\_\_

WITNESSES: Name \_\_\_\_\_ Address \_\_\_\_\_ Phone No. \_\_\_\_\_

ARRESTS: Name \_\_\_\_\_ Charge(s) Left of Center (Cit. No.) \_\_\_\_\_

Name \_\_\_\_\_ Charge(s) \_\_\_\_\_ (Cit. No.) \_\_\_\_\_

Sign Here \_\_\_\_\_ Number \_\_\_\_\_ Date of Report 6-1/1990

Officer's Rank and Name

Number

Department

Date of Report

CONTRIBUTING CIRCUMSTANCES (Check as many as apply)

Driver	Driver	Driver
1	2	1
<input checked="" type="checkbox"/> 1. No violation indicated	<input type="checkbox"/> 10. Pass stopped school bus	<input type="checkbox"/> 19. Safe movement violation
<input type="checkbox"/> 2. Alcohol use	<input type="checkbox"/> 11. Passing on hill	<input type="checkbox"/> 20. Following too closely
<input type="checkbox"/> 3. Drug use	<input type="checkbox"/> 12. Passing on curve	<input type="checkbox"/> 21. Improper backing
<input type="checkbox"/> 4. Yield	<input type="checkbox"/> 13. Other improper passing	<input type="checkbox"/> 22. Improper parking
<input type="checkbox"/> 5. Stop sign	<input type="checkbox"/> 14. Improper lane change	<input type="checkbox"/> 23. Unable to determine
<input type="checkbox"/> 6. Traffic signal	<input type="checkbox"/> 15. Use of improper lane	<input checked="" type="checkbox"/> 24. Left of center
<input type="checkbox"/> 7. Exceeding speed limit	<input type="checkbox"/> 16. Improper turn	<input type="checkbox"/> 25. Right turn on red
<input type="checkbox"/> 8. Exceeding safe speed	<input type="checkbox"/> 17. Improper or no signal	<input checked="" type="checkbox"/> 26. Other <u>Failure to Reduce Speed</u>
<input type="checkbox"/> 9. Minimum speed law	<input type="checkbox"/> 18. Improper vehicle equipment	

RESERVED FOR CITY OR OTHER USE

Vehicle #1 Left of Center

Vehicle #2 Left of Center

RESERVED FOR STATE USE

	Driver 1	Driver 2
24. Direction		
25. Violation		
26. Misc. Action		
27. Charges		
28. Investigating Agency		

Date: 19 90 Day of Week: Friday Time: 0730 (24 Hour Clock)

Accident Occurred in: County ☐ In City ☐ Near or Town of NC ☐ of City or Town Limits

Outside City or Town: 306 Miles ☐ N ☐ S ☐ E ☐ W

on Highway Number (I., U.S., N.C., R.P., R.U.). If within corporate limit or no highway number, identify by street name. If ramp or service road, indicate on line.

RR. Crossing No.: NC (N) toward RU

3 Miles ☐ ☐ ☐ ☐ Feet (0 ft. if intersec.)

Use Highway Number, Street Name, or Adjacent County or State Line

Local Use

Do not write in these spaces  
DMV Report No.:

Date Received by DMV:

1990

Patrol Area

Use Highway Number, Street Name, Incorporated Town, or Adjacent County or State Line

1. VEHICLE MANEUVER/  
PEDESTRIAN ACTION

## 2. ACCIDENT TYPE

## 3. OBJECT STRUCK AND 4. DISTANCE

1. VEHICLE MANEUVER/ PEDESTRIAN ACTION		2. ACCIDENT TYPE		3. OBJECT STRUCK AND 4. DISTANCE			
Veh. 1	Veh. 2 or Ped.	FIRST HARMFUL EVENT	MOST HARMFUL EVENT: Repeat Code If same as for FIRST HARMFUL EVENT	Vehicle 1		Vehicle 2	
Object	Distance	Object	Distance	Object	Distance	Object	Distance
<u>3</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>1</u>	<u>8</u>		

No. of Units Involved: 3

Driver: 3 First ED-7 Middle ED-7 Last Name ED-7

Address: ED-7 State: NC Zip Code: ED-7

City: ED-7

Same Address as on Driver's License? ☒ Yes ☐ No Driver's License? ☒ Yes ☐ No Phone No.: ED-7

Race/ Sex: ED-7 Driver's Lic. No.: ED-7 State: NC

Date of Birth: ED-7 Specify Restriction: ED-7

Veh. Year: ED-7 Veh. Make: ED-7 Veh. Type: P Tir. Type: ED-7

S-Tir.: 1. Length ED-7 Width ED-7 Axles ED-7 2. Length ED-7 Width ED-7 Axles ED-7

Hazardous Material ☐ Spilled? ☐ Yes ☒ No Commercial Vehicle ☐

Lic. Plate No.: ED-7 State: NC Year: ED-7

VIN: ED-7

Owner: ED-7

Address: ED-7

City: ED-7 State: NC Zip Code: ED-7

(Parts TAD Damaged): ED-7 Estimated Damage: \$ ED-7

Vehicle Drivable? ☐ Yes ☒ No Post Crash Fire? ☐ Yes ☒ No

Removed to: ED-7 Authority: ED-7

☐ VEHICLE NO. 2 ☐ PEDESTRIAN ☐ OTHER ☐ HIT & RUN

Driver: ED-7 First ED-7 Middle ED-7 Last Name ED-7

Address: ED-7 State: NC Zip Code: ED-7

City: ED-7

Same Address as on Driver's License? ☐ Yes ☒ No Driver's License? ☐ Yes ☒ No Phone No.: ED-7

Race/ Sex: ED-7 Driver's Lic. No.: ED-7 State: NC

Date of Birth: ED-7 Specify Restriction: ED-7

Veh. Year: ED-7 Veh. Make: ED-7 Veh. Type: ED-7 Tir. Type: ED-7

S-Tir.: 1. Length ED-7 Width ED-7 Axles ED-7 2. Length ED-7 Width ED-7 Axles ED-7

Hazardous Material ☐ Spilled? ☐ Yes ☒ No Commercial Vehicle ☐

Lic. Plate No.: ED-7 State: NC Year: ED-7

VIN: ED-7

Owner: ED-7

Address: ED-7

City: ED-7 State: NC Zip Code: ED-7

(Parts TAD Damaged): ED-7 Estimated Damage: \$ ED-7

Vehicle Drivable? ☐ Yes ☒ No Post Crash Fire? ☐ Yes ☒ No

Removed to: ED-7 Authority: ED-7

Other Property Damaged: ED-7Estimated Damage: ED-7Owner Name: ED-7Address: ED-7

INJURY SECTION INSTRUCTIONS: Give Injury Class, Belt/Helmet Usage, Race/Sex and Age of all occupants in the space corresponding to the seat occupied (see codes at bottom). Names and addresses are necessary for persons who were injured.

Seat	Inj. Cl.	Belt/Hel.	Race Sex	Age	Injured Names and Addresses		Seat	Inj. Cl.	Belt/Hel.	Race Sex	Age	Injured Names and Addresses	
					First Name	Last Name						First Name	Last Name
Left Front	<u>A</u>	<u>3</u>	<u>W</u>	<u>43</u>	<u>DRIVER 1</u>		Left Front					<u>DRIVER 2, PEDESTRIAN, OTHER</u>	
Center Front							Center Front						
Right Front							Right Front						
Left Rear							Left Rear						
Center Rear							Center Rear						
Right Rear							Right Rear						

Total Number Occupants: 1 Total Number Injured: 1Total Number Occupants: 1 Total Number Injured: 1Ambulance Requested? ☒ Yes ☐ No If Yes, Ambulance Arrived At: 0738 (24 Hour Clock)Injured Taken To: Hospital, NC (Treatment Facility and City or Town)

## Injury Class

- Killed
- Incapacitating (injury obviously serious enough to prevent carrying on normal activities for at least 24 hours, e. g., massive loss of blood, broken bone)
- B—Nonincapacitating (injury other than K or A evident at the scene)
- C—No visible sign of injury but complaint of pain or momentary unconsciousness
- I—No injury

## Belt/Helmet

- 1. None or not used
- 2. Lap only
- 3. Lap and shoulder
- 4. Child restraint system
- 7. If motorcycle, Helmet in use
- 9. Unable to determine

Vehicle 1		Vehicle 2	
Airbags	Deployed	Airbags	Deployed
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

POINT(S) OF  
INITIAL CONTACT  
Write in Codes

VEH. 2

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

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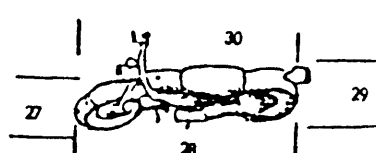
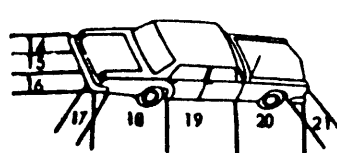
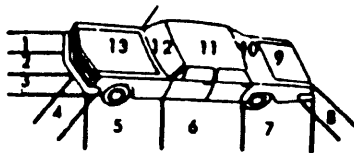
76

77

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79

80



Underneath:  
22. Front  
23. Center  
24. Rear

26. Unknown

Motorcycle  
Bicycle or  
Moped

ROADWAY INFORMATION

1. Locality

2. Development Type

3. Road Feature

4. Road Character

5. Road Class

6. Number of Lanes

7. Road Configuration

8. Road Surface

9. Road Defects

10. Road Condition

11. Light Condition

12. Weather

13. Traffic Control

Operating

Visible

Yes No Yes No

14. Vision Obstruction

15. Physical Condition

16. Intoxication

17. Chemical Test

Given

DRIVER 1

DRIVER 2

OR PED.

VEH. 13

VEH. 2

18. Vehicle Defects

19. Speed Limit (for each vehicle)

20. Estimated Original Traveling Speed

21. Estimated Speed at Impact

22. Tire Impressions Before Impact (ft.)

23. Distance Traveled After Impact (ft.)



ICATE  
NORTH

Vehicle 1 was Traveling

N

S

E

W

on N.C.

Vehicle 2 was Traveling

N

S

E

W

on

Describe what happened:

See narrative and diagram; page #1 of this report.

Witness Name

Address

Phone No.

Witness Name

Address

Phone No.

AR 1TS Name

Charge(s)

Name

Charge(s)

Sign Here

Officer's Rank and Name

Number

Department

Date of Report

CONTRIBUTING CIRCUMSTANCES (Check as many as apply)

- ☒ 1. No violation indicated
- ☐ 2. Alcohol use
- ☐ 3. Drug use
- ☐ 4. Yield
- ☐ 5. Stop sign
- ☐ 6. Traffic signal
- ☐ 7. Exceeding speed limit
- ☐ 8. Exceeding safe speed
- ☐ 9. Minimum speed law

- ☐ 10. Pass stopped school bus
- ☐ 11. Passing on hill
- ☐ 12. Passing on curve
- ☐ 13. Other improper passing
- ☐ 14. Improper lane change
- ☐ 15. Use of improper lane
- ☐ 16. Improper turn
- ☐ 17. Improper or no signal
- ☐ 18. Improper vehicle equipment

- ☐ 19. Safe movement violation
- ☐ 20. Following too closely
- ☐ 21. Improper backing
- ☐ 22. Improper parking
- ☐ 23. Unable to determine
- ☐ 24. Left of center
- ☐ 25. Right turn on red
- ☐ 26. Other

RESERVED FOR CITY OR OTHER USE

Vehicle #3 USF&G

RESERVED FOR STATE USE

	Driver 1	Driver 2
24. Direction		
25. Violation		
26. Misc. Action		
27. Charges		
28. Investigating Agency:		

## APPENDIX B

### CRASHPC Output

## SUMMARY OF CRASHPC RESULTS (USING SPINOUT)

## CRASH RECONSTRUCTION

SPEED CHANGE (DAMAGE)	VEH #1	TOTAL (MPH)	LONG. (MPH)	LAT. (MPH)	ANG. (DEG)
	VEH #1	26.8	-25.9	6.9	-15.0
	VEH #2	33.4	-30.2	-14.1	25.0

ENERGY DISSIPATED BY DAMAGE VEH#1: 60551.6 FT-LB VEH#2: 176313.3 FT-LB

SUMMARY OF DAMAGE DATA  
VEHICLE # 1(\* INDICATES DEFAULT VALUE)  
VEHICLE # 2

TYPE-----CATEGORY 3  
 STIFFNESS---CATEGORY 3  
 WEIGHT-----3493.0 LBS.  
 CDC-----12FYEW3  
 L-----59.5 IN.  
 C1-----33.8 IN.  
 C2-----20.3 IN.  
 C3-----14.5 IN.  
 C4-----6.5 IN.  
 C5-----1.9 IN.  
 C6-----0.9 IN.  
 D-----0  
 RHO-----1.00 \*  
 ANG-----15.0 DEG.  
 D'-----13.2 IN.

TYPE-----CATEGORY 3  
 STIFFNESS---CATEGORY 8  
 WEIGHT-----2800.0 LBS.  
 CDC-----01FDEW4  
 L-----55.0 IN.  
 C1-----42.0 IN.  
 C2-----36.0 IN.  
 C3-----30.0 IN.  
 C4-----18.0 IN.  
 C5-----12.0 IN.  
 C6-----8.0 IN.  
 D-----0  
 RHO-----1.00 \*  
 ANG-----25.0 DEG.  
 D'-----7.2 IN.

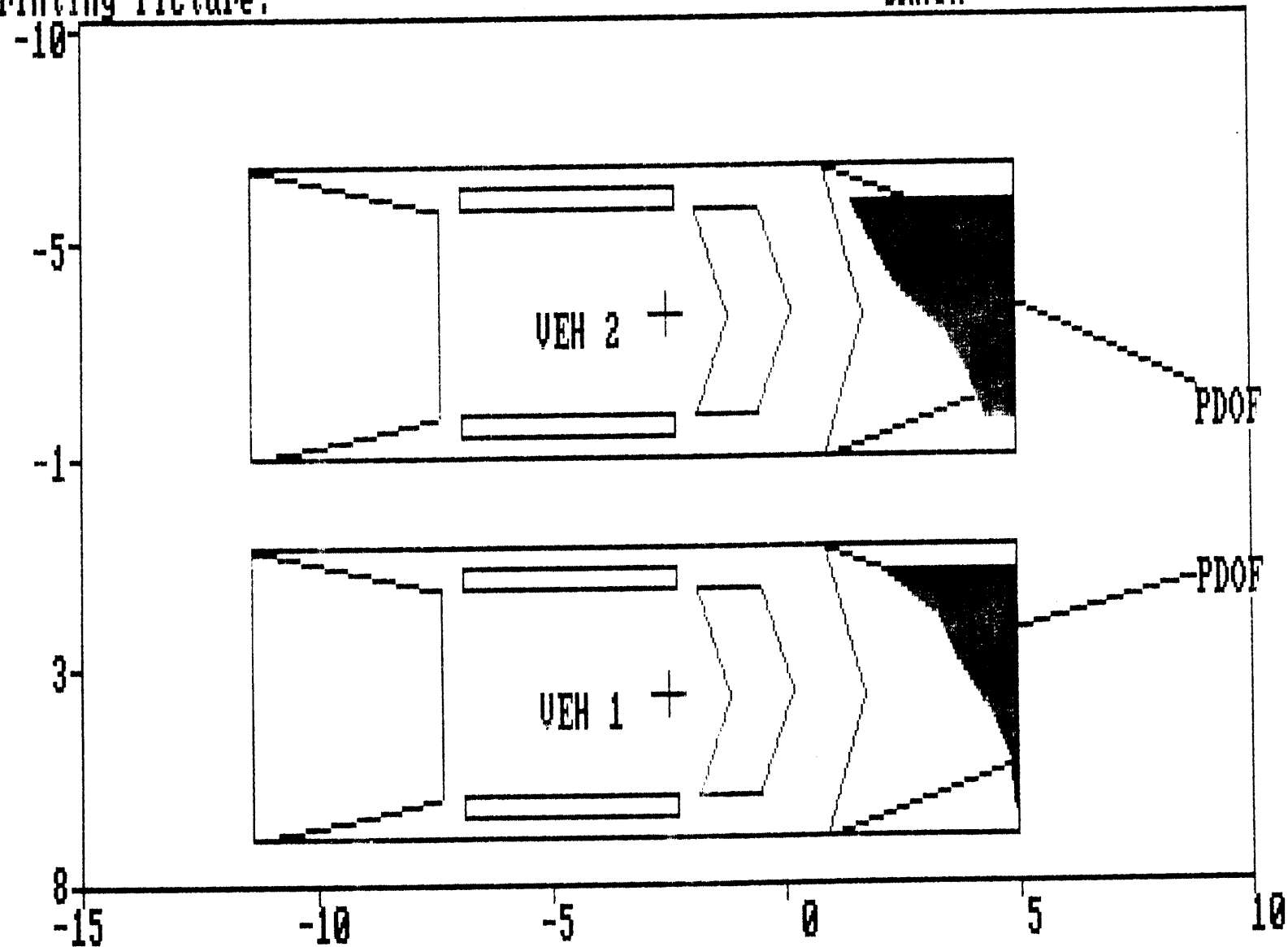
## DIMENSIONS AND INERTIAL PROPERTIES

A1	=	51.3	IN.	A2	=	51.3	IN.
B1	=	55.5	IN.	B2	=	55.5	IN.
TR1	=	58.9	IN.	TR2	=	58.9	IN.
I1	=	30189.1	LB-SEC**2-IN	I2	=	24199.7	LB-SEC**2-IN
M1	=	9.082	LB-SEC**2/IN	M2	=	7.280	LB-SEC**2/IN
XF1	=	89.8	IN.	XF2	=	89.8	IN.
XR1	=	-106.4	IN.	XR2	=	-106.4	IN.
YS1	=	36.3	IN.	YS2	=	36.3	IN.



Printing Picture:

CRASH



DAMAGE DESCRIPTION

APPENDIX C

Air Bag Supplement

## ACCIDENT SUMMARY

ACCIDENT DATE            190

POLICE INVESTIGATED (1,2,9)\*

                     STATE POLICECity            County           

## GENERAL LOCALITY

- (1) Freeway, Limited Access
- (2) Urban (City)
- (3) Urban-Rural (mixed)
- (4) Rural, Fields

## CONFIGURATION (First Harm)

. (0) Struck Object or Pedestrian

- (1) Rear-End
- 2) Head-On
- 3) Rear-to-Rear
- (4) Angle
- (5) Sideswipe-Same Direction
- 6) Sideswipe-Opposite Direct.
- (7) NonCollision Fell from Veh
- (8) Nonimpact Deployment
- 9) Unknown

FIRE INVOLVED (0) None

- (1) AirBag Vehicle
- (2) Other Vehicle
- (3) Both Vehicles
- (9) Unknown

NUMBER: VEHICLES INVOLVED

(8)=8 or more  
PERSONS INVOLVED

INJURED PERSONS

MAXIMUM AIS IN ACCIDENT

\* PROBABLE  
OTHER VEHICLE: MAXIMUM AIS →PRIME/DEPLOY IMPACT w AB VEH:  
EVENT NUMBERCDC 01 - F D E W - 4

TOTAL DELTA-V

Model Year, Make, Model, Body Type:

1988 NISSAN PICKUP TRUCK

## AIRBAG VEHICLE INSPECTION

DATE VEH. INSPECTED            190

## REASON VEHICLE NOT INSPECTED

- (0) Not Required
  - (1) Inspection Completed
  - (2) Cannot be Located\*\*
  - (3) Repaired or Destroyed\*\*
  - (5) Refusal or Impounded\*\*
  - (7) Other\*
- \*\*Specify: \_\_\_\_\_

## IMPACT DATA OBTAINED

- (0) No Data Obtained
- (1) CDC Only
- (2) Crush Profile Only
- (3) Trajectory Data Only
- (4) CDC and Crush Profile
- (5) CDC and Trajectory
- (6) Crush and Trajectory
- (7) CDC, Crush & Trajectory

## BASIS OF DELTA-V

- (0) Not Computed (Unknown Why)
- (1) CRASH - Damage Only
- (2) CRASH - Damage+Trajectory
- (3) Missing Vehicle Algorithm
- (4) Yielding Object Algorithm
- (5) Unknown Basis
- (6) One Vehicle Beyond Scope
- (7) Collision Beyond Scope
- (8) Insufficient Data

## VEHICLE HISTORY

HAS AIRBAG VEHICLE BEEN IN  
ANY PRIOR IMPACTS (1,2,9)\*HAS ANY PRIOR MAINTENANCE/SERVICE  
BEEN PERFORMED ON SYSTEM(1,2,9)\*

\*Describe: \_\_\_\_\_

AIRBAG VEHICLE: FLEET MERCEDES-BENZVIN WDBEB33T5MILEAGE 72,723

SYSTEM READINESS LAMP  
(In Instrument Cluster)

PRE-IMPACT LAMP CONDITION

- (1) Functioning/ProvedOut
- (2) Inoperative
- (9) Unknown

DRIVER'S REPORT OF  
PRE-IMPACT FLASHING

- (00) No Flashing Reported
- (01) Continuous Flashing
- (02) -- >Number of Flashes
- (11)
- (12) Constant Light
- (19) Flashing, Unkn Number
- (88) Not App (system removed)
- (99) Unknown

PERIOD OF PRE-IMPACT FLASHING

- (0) No Flashing
- (1) Same Day as Impact
- (2) Prior Day
- (3) Prior Two Days
- (4) Prior Week
- (5) Prior Month
- (6) Over One Month
- (9) Unknown

POST-IMPACT LAMP CONDITION

- (1) Functioning/ProvedOut
- (2) Inoperative
- (9) Unknown

POST-IMPACT FLASHING

- (00) No Flashing
- (01) Continuous Flashing
- (02) -- >Number of Flashes
- (11)
- (12) Constant Light
- (19) Flashing, Unkn Number
- (88) Not Appl (removed)
- (99) Unknown

AIRBAG VEHICLE  
FIRST HARMFUL EVENT

13

- (01) Fire or explosion
- (02) Immersion
- (03) Gas Inhalation
- (04) Fell from vehicle
- (05) Injured in vehicle
- (06) Other noncollision (specify):
- (07) Overturn
- (08) Jackknife with intraunit damage  
Collision With:
- (09) Pedestrian
- (10) Pedalcyclist
- (11) Railway train
- (12) Animal
- (13) Motor vehicle in transport (same roadway)
- (14) Motor vehicle in transport (other roadway)
- (15) Parked motor vehicle
- (16) Other type nonmotorist (specify):
- (17) Thrown or falling object
- (18) Boulder  
Collision with Fixed Object:
- (20) Building
- (21) Impact attenuator/Crash Cushion
- (22) Bridge pier or abutment
- (23) Bridge parapet end
- (24) Bridge rail
- (25) Guardrail
- (26) Concrete traffic barrier
- (27) Median barrier
- (28) Other longitudinal barrier (specify):
- (29) Highway/Traffic sign post
- (30) Overhead sign support
- (31) Luminaire/Light support
- (32) Utility pole
- (33) Other post, pole, or support (specify):
- (34) Culvert
- (35) Curb
- (36) Ditch
- (37) Embankment-earth
- (38) Embankment-rock, stone or concrete
- (39) Fence (wooden, wire, chain link, etc.)
- (40) Wall (stone, rock, metal, etc.)
- (41) Fire hydrant
- (42) Shrubbery
- (43) Tree
- (44) Other fixed object (specify):
- (45) Pavement surface irregularity (pothole, grooved, grates)
- (99) Unknown

1

00

0

2

88

AIRBAG VEHICLE IMPACT SUMMARY

VEHICLE ROLE

- (1) Non-collision  
(2) Striking Unit  
(2) Struck Unit HEAD-ON  
(3) Both Striking and Struck  
(4) Unknown

MANNER OF LEAVING SCENE

- (1) Driven  
(2) Towed-due to damage  
(3) Towed - not for damage  
(4) Towed - details unknown  
(5) Abandoned  
(7) Unknown

NUMBER OF IMPACT EVENTS

- (8) 8 or more, (9) Unknown

ROLLOVER (0) No Rollover

- (1) First Event  
(2) Subsequent Event  
(3) Yes, Unknown Event  
(9) Unknown

OVERRIDE/UNDERRIDE

- (1) No over/underride  
(2) Override - 1st CDC  
(3) - Other CDC  
(4) Underride - 1st CDC  
(5) - Other CDC  
(6) Unknown

AIRBAG VEHICLE DAMAGE

- CODES: (1) Yes, DAMAGED  
(2) No Damage  
(9) Unknown

LEFT FRONT FENDER DAMAGE

RIGHT FRONT FENDER DAMAGE

CENTER TOP OF GRILLE DAMAGE

FRONT BUMPER E.A. STATUS: Left

- (1) Normal Right  
(2) Extended  
(3) Partial Compression  
(4) Complete Compression  
(5) Not Applicable  
(7) Unknown

FIRST AIRBAG VEHICLE IMPACT:

CONFIGURATION

- (0) Struck Object or Pedestrian  
(1) Rear-End  
(2) Head-On  
(3) Rear-to-Rear  
(4) Angle  
(5) Sideswipe - Same Direction  
(6) Sideswipe-Opposite Direct.  
(7) NonCollision Fell from Veh  
(8) NonImpact Deployment  
(9) Unknown

CDC 12 - F Y E W - 3

OBJECT CONTACTED: 88 NISSAN PICKUP TRUCK

PRIMARY/DEPLOYMENT IMPACT:

EVENT NUMBER

TOTAL DELTA-V

LONGITUDINAL DELTA-V

CONFIGURATION

- (0) Struck Object or Pedestrian  
(1) Rear-End  
(2) Head-On  
(3) Rear-to-Rear  
(4) Angle  
(5) Sideswipe - Same Direction  
(6) Sideswipe-Opposite Direct.  
(7) NonCollision Fell from Veh  
(8) NonImpact Deployment  
(9) Unknown

CDC 12 - F Y E W - 3

OBJECT CONTACTED: 88 NISSAN PICKUP TRUCK

NOTES:



## AIRBAG SYSTEM DAMAGE

CODES: (1) Yes, Damaged\*  
 (2) No, Intact  
 (8) Not App.(Removed)  
 (9) Unknown

## AIRBAG MODULE

SENSORS: Left Front

Center Front

Right Front

Rear, Cowl

DIAGNOSTIC MODULE

WIRING

KNEE DIVERter

INDICATION OF DISCONNECTED  
 OR LOOSE ELECTRICAL  
 CONNECTORS

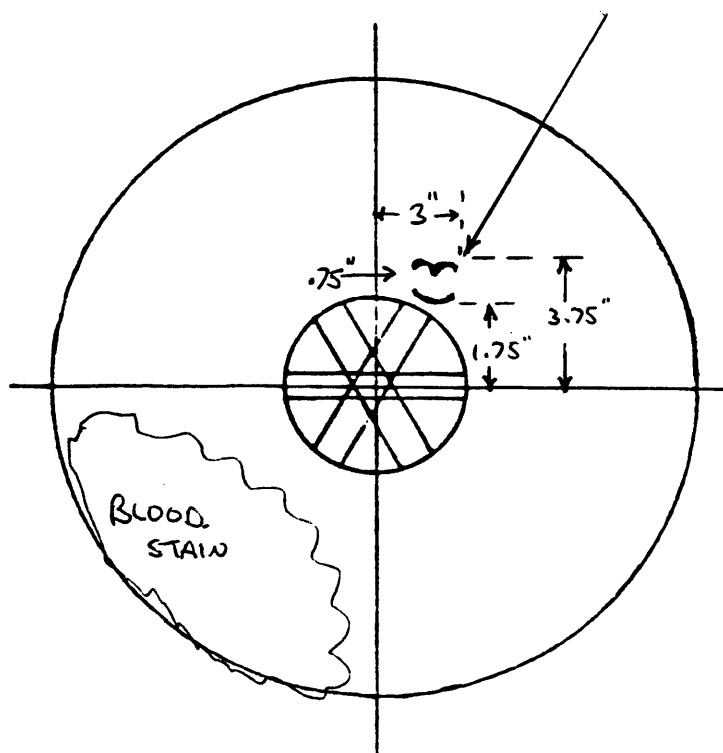
## CONDITION OF DEPLOYED BAG

(1) Bag Intact  
 (2) Split or Torn\*  
 (3) Cut by Object In Impact\*  
 (4) Cut after Accident\*  
 (5) Other (e.g., burned)\*  
 (8) N/A (not deployed)  
 (9) Unknown

\*DESCRIBE System and Bag Damage:

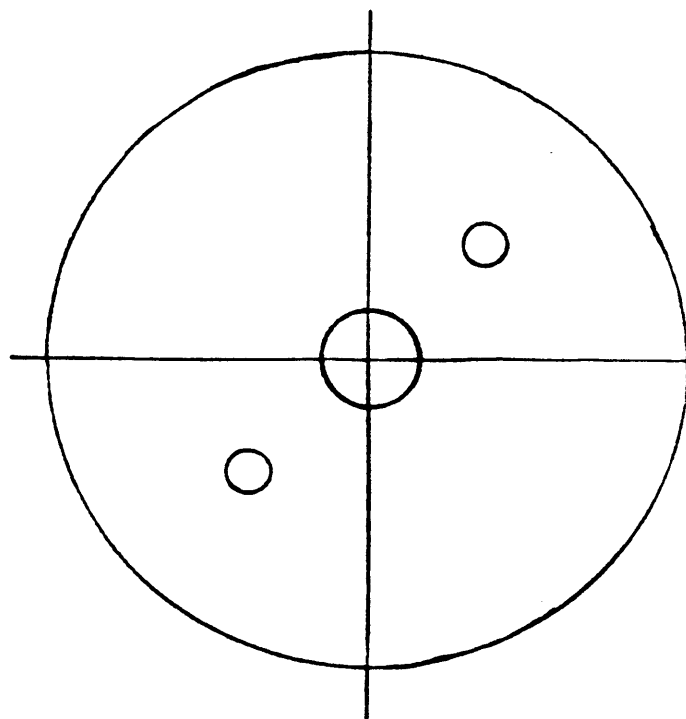
NOTE DAMAGE AND CONTACT MARKS ON AIRBAG DIAGRAMS BELOW:

LIP STICK TRANSFER



FRONT

TOP



BOTTOM

BACK

BEST AVAILABLE COPY

OCCUPANTS of AIRBAG CAR		NOTES:	
NUMBER OF OCCUPANTS IN VEHICLE (8) 8 or more	<u>1</u>		
NUMBER OF INJURED PERSONS	<u>1</u>		
MAXIMUM AIS IN AIRBAG VEHICLE (0) No Injury (1-6) AIS Severity (7) Injured, Unknown Severity (9) Unknown	<u>4</u>		
DRIVER AGE <u>43</u> SEX <u>FEMALE</u>			
NUMBER OF DRIVER INJURIES	<u>11</u>		
SOURCE OF BEST INJURY DATA	<u>2</u>		
(0) Not Injured (1) Autopsy w/wo med. records (2) Hospital Medical Records (3) Emergency Room only (4) Private physician, Clinic (5) Lay Coroner Report (6) EMS Personnel (7) Interviewee (8) Police (9) Unknown			
-----			
MAXIMUM AIS BY BODY REGION			
REGION	MAX AIS		CONTACT
Head/Neck/Face	<u>4</u>		<u>40</u>
Chest	<u>1</u>		<u>41</u>
Abdomen	<u>1</u>		<u>41</u>
Leg/Hips	<u>1</u>	<u>13</u>	
Other (Arms)	<u>1</u>	<u>20</u>	
DRIVER MAXIMUM	<u>4</u>	<u>40</u>	
-----			
EJECTION: Extent <u>NONE</u>			
Portal <u>NA</u>			

**DRIVER BELT USAGE:** (1) Used (2) Not Used (9) Unknown 1

Evidence: ETRS FIRED, BELT INDUCED CONTUSIONS OF THE  
LEFT SHOULDER, CHEST, ABDOMINAL WALL

**DRIVER POSTURE:** Any Comments Recorded (1) Yes, (2) No 1

Describe driver's posture and position on seat including specific comments on head, torso, buttocks, legs and feet. Also note hand and arm position. Did driver brace before crash? Describe:

NORMAL, UPRIGHT SEATED POSITION

**DRIVER FOREIGN OBJECTS:** Comments Recorded (1) Yes, (2) No 1

Was driver wearing contact lenses or eyeglasses? Or holding any foreign object at the time of the impact (packages on lap, pipe, food, bottle, cigarette, etc.)? Did any lenses, objects, or jewelry play any role?:

EYEGLASSES DISPLACED UPWARD INTO FOREHEAD RESULTING  
IN 2 SMALL LACERATIONS, NO DAMAGE TO EYEGLASSES

**DRIVER COMMENTS:** Comments Recorded (1) Yes, (2) No 1

Was the driver aware that the vehicle was equipped with a supplemental restraint system? Did driver offer any comments on smoke, noise, etc.? Did the driver comment on the airbag as a restraint system? Describe:

THOUGHT AIR BAG SAVED HER LIFE

**PASSENGER-AIRBAG CONTACT** (1) Yes, (2) No, (9) Unknown 2

Describe: NO PASSENGER

APPENDIX D

NASS Vehicle Forms



## GENERAL VEHICLE FORM

1. ~~Primary Sampling Unit Number~~ — —

2. Case Number — ~~Stratum~~ 90-16

3. Vehicle Number 01

### VEHICLE IDENTIFICATION

4. Vehicle Model Year 87  
Code the last two digits of the model year  
(99) Unknown

5. Vehicle Make (specify): 42  
MERCEDES-BENZ  
Applicable codes are found in your  
NASS CDS Data Collection, Coding, and  
Editing Manual.  
(99) Unknown

6. Vehicle Model (specify): 031  
300DT  
Applicable codes are found in your  
NASS CDS Data Collection, Coding, and  
Editing Manual.  
(999) Unknown

7. Body Type 04  
Note: Applicable codes are found on  
the back of this page.

8. Vehicle Identification Number  
WDBEB33D SHA  
Left justify; Slash zeros and letter Z (0 and Z)  
No VIN—Code all zeros  
Unknown—Code all nine's

### OFFICIAL RECORDS

9. Police Reported Vehicle Disposition 1  
(0) Not towed due to vehicle damage  
(1) Towed due to vehicle damage  
(9) Unknown

10. Police Reported Travel Speed 50  
Code to the nearest mph (NOTE: 00 means  
less than 0.5 mph)  
(97) 96.5 mph and above  
(99) Unknown

11. Police Reported Alcohol or Drug Presence 0  
(0) Neither alcohol nor drugs present  
(1) Yes (alcohol present)  
(2) Yes (drugs present)  
(3) Yes (alcohol and drugs present)  
(4) Yes (alcohol or drugs present—specifics  
unknown)  
(7) Not reported  
(8) No driver present  
(9) Unknown

12. Alcohol Test Result for Driver 96  
Code actual value (decimal implied before  
first digit—0.xx)  
(95) Test refused  
(96) None given  
(97) AC test performed, results unknown  
(98) No driver present  
(99) Unknown

Source \_\_\_\_\_

### ACCIDENT RELATED

13. Speed Limit 55  
(00) No statutory limit  
Code posted or statutory speed limit  
(99) Unknown

14. Attempted Avoidance Maneuver 09  
(00) No impact  
(01) No avoidance actions  
(02) Braking (no lockup)  
(03) Braking (lockup)  
(04) Braking (lockup unknown)  
(05) Releasing brakes  
(06) Steering left  
(07) Steering right  
(08) Braking and steering left  
(09) Braking and steering right  
(10) Accelerating  
(11) Accelerating and steering left  
(12) Accelerating and steering right  
(97) No driver present  
(98) Other action (specify):  
\_\_\_\_\_  
(99) Unknown

15. Accident Type 51  
Applicable codes may be found on the back  
of page two of this field form  
(00) No impact  
Code the number of the diagram that  
best describes the accident circumstance  
(98) Other accident type (specify):  
\_\_\_\_\_  
(99) Unknown

\*\*\*\* STOP HERE IF GV07 DOES NOT EQUAL 01-49 \*\*\*\*



## CODES FOR BODY TYPE

### CDS APPLICABLE VEHICLES

#### Automobiles

- (01) Convertible (excludes sun-roof, t-bar)
- (02) 2-door sedan, hardtop, coupe
- (03) 3-door/2-door hatchback
- (04) 4-door sedan, hardtop
- (05) 5-door/4-door hatchback
- (06) Station wagon (excluding van and truck based)
- (08) Other automobile type (specify): \_\_\_\_\_

- 
- (09) Unknown automobile type

#### Automobile Derivatives

- (10) Auto based pickup (includes El Camino, Caballero, Ranchero, and Brat)
- (11) Auto based panel (cargo station wagon, includes auto based ambulance/hearse)
- (12) Large limousine—more than four side doors or stretched chassis

#### Utility Vehicles

- (13) Short utility—not truck based (includes Jeep CJ-5, Jeep CJ-7, Renegade, Landrover, Pre-78 Bronco, Landcruiser, Thing)
- (14) Truck based utility (2-door; includes Blazer, Bronco—78 on, Bronco II, Jimmy, Ramcharger, Cherokee, Trailduster, Scout)

#### Van Based Light Trucks (< 10,000 lbs GVWR)

- (20) Minivan (Lumina APV, Astro, Caravan, Plymouth Vista, Aerostar, Safari, Voyager [84 and after], Dodge Vista, Mini Ram Van, Toyota Cargo Van, Toyota Van, Vanagon, VW Bus, Kombi)
- (21) Standard van (Sportvan, Chevy Van, Club Wagon, Ford Econoline, Ram Van, Chateau, Ram Wagon, Vandura, Rally, Voyager [83 and before], Beauville, Sportsman)
- (28) Other van type (specify): \_\_\_\_\_
- (29) Unknown van type

#### Light Conventional Trucks (Pickup Style Cab, < 10,000 lbs GVWR)

- (30) Compact pickup (< 4,500 lbs. GVWR, S-10, LUV, Ram 50, Rampage, Courier, Ranger, S-15 Pup, Mazda Pickup, Mitsubishi Truck, Nissan Pickup, Arrow Pickup, Scamp, Toyota Pickup, VW Pickup)
- (31) Standard pickup (4,500 to 10,000 lbs. GVWR, C10 - C30, K10 - K30, T10, D100 - D350, W150 - W350, F100 - F350, Comanche, J10 - J30, Dakota)
- (32) Pickup with slide-in camper
- (33) Truck based station wagon (4-door; includes Suburban, Travelall, Wagoneer)
- (34) Light truck based suburban limousine
- (35) Convertible pickup
- (39) Unknown (pickup style) light conventional truck type

#### Other Light Trucks (< 10,000 lbs GVWR)

- (40) Cab chassis based (includes rescue vehicle, light stake, dump, and tow truck)
- (41) Truck based panel
- (42) Light truck based motorhome (chassis mounted)
- (47) Other light conventional truck type (not a pickup) (specify): \_\_\_\_\_
- (48) Unknown other light truck type (not a pickup)
- (49) Unknown light vehicle type (automobile, van, or light truck)

### OTHER VEHICLES

#### Buses (Excludes Van Based)

- (50) School bus (designed to carry students, not cross country or transit)
- (58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify): \_\_\_\_\_
- (59) Unknown bus type

#### Medium/Heavy Trucks (> 10,000 lbs GVWR)

- (60) Step van
- (61) Single unit straight truck (10,000 lbs < GVWR < 26,000 lbs)
- (62) Single unit straight truck (> 26,000 lbs GVWR)
- (63) Medium/heavy truck based motorhome
- (64) Truck-tractor with no cargo trailer
- (65) Truck-tractor pulling one trailer
- (66) Truck-tractor pulling two or more trailers
- (67) Truck-tractor (unknown if pulling trailer)
- (68) Unknown medium/heavy truck type
- (69) Unknown truck type (light/medium/heavy)

#### Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)

- (70) Motorcycle
- (71) Moped (motorized bicycle)
- (78) Other motored cycle type (minibike, motorscooter) (specify): \_\_\_\_\_

- 
- (79) Unknown motored cycle type

#### Other Vehicles

- (80) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
- (88) Other vehicle type (specify): \_\_\_\_\_

- 
- (99) Unknown body type

**OCCUPANT RELATED**16. Driver Presence in Vehicle 1

- (0) Driver not present  
(1) Driver present  
(9) Unknown

17. Number of Occupants This Vehicle 01

- (00-96) Code actual number of occupants for this vehicle  
(97) 97 or more  
(99) Unknown

18. Number of Occupant Forms Submitted 01**VEHICLE WEIGHT ITEMS**19. Vehicle Curb Weight 03,400

3325 Code weight to nearest 100 pounds.

- (010) Less than 1050 pounds  
(135) 13,500 lbs or more  
(999) Unknown

Source:                     

20. Vehicle Cargo Weight 0000

Code weight to nearest 100 pounds.

- (00) Less than 50 pounds  
(97) 9,650 lbs or more  
(99) Unknown

**RECONSTRUCTION DATA**21. Towed Trailing Unit 0

- (0) No towed unit  
(1) Yes – towed trailing unit  
(9) Unknown

22. Documentation of Trajectory Data for This Vehicle 1

- (0) No  
(1) Yes

23. Post Collision Condition of Tree or Pole (for Highest Delta V) 0

- (0) Not collision (for highest delta V) with tree or pole  
(1) Not damaged  
(2) Cracked/sheared  
(3) Tilted <45 degrees  
(4) Tilted ≥45 degrees  
(5) Uprooted tree  
(6) Separated pole from base  
(7) Pole replaced  
(8) Other (specify):

(9) Unknown

24. Rollover 0

- (0) No rollover (no overturning)

Rollover (primarily about the longitudinal axis)

- (1) Rollover, 1 quarter turn only  
(2) Rollover, 2 quarter turns  
(3) Rollover, 3 quarter turns  
(4) Rollover, 4 or more quarter turns (specify):

- (5) Rollover – end-over-end (i.e., primarily about the lateral axis)

- (9) Rollover (overturn), details unknown

**OVERRIDE/UNDERRIDE (THIS VEHICLE)**25. Front Override/Underride (this vehicle) 026. Rear Override/Underride (this vehicle) 0

- (0) No override/underride, or not an end-to-end impact

Override (see specific CDC)

- (1) 1st CDC  
(2) 2nd CDC  
(3) Other not automated CDC (specify):

Underride (see specific CDC)

- (4) 1st CDC  
(5) 2nd CDC  
(6) Other not automated CDC (specify):

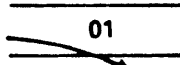
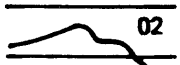
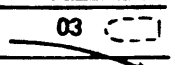
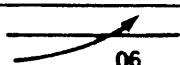


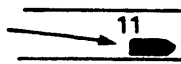


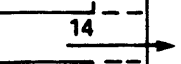

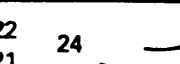
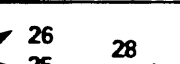
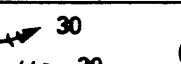
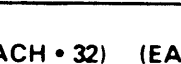
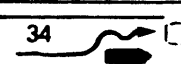

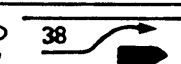
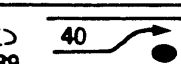

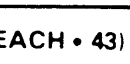
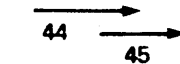
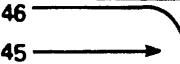

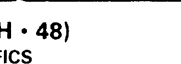


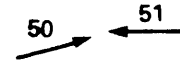


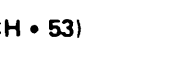




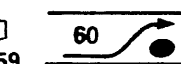

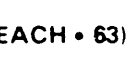
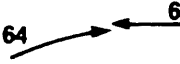


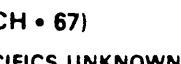


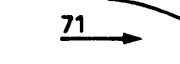
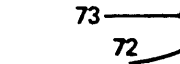

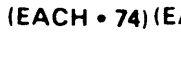
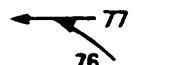

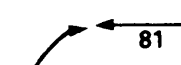


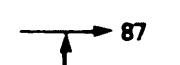


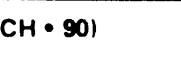

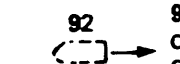





- (7) Medium/heavy truck override  
(9) Unknown

**HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V**

Values: (000)-(359) Code actual value  
(997) Noncollision  
(998) Impact with object  
(999) Unknown

27. Heading Angle for This Vehicle 000

28. Heading Angle for Other Vehicle 165

Category	Configuration	ACCIDENT TYPES (Includes Intent)				
I. Single Driver	A. Right Roadside Departure	01  DRIVE OFF ROAD	02  CONTROL/ TRACTION LOSS	03  AVOID COLLISION WITH VEH., PED., ANIM.	04 SPECIFICS OTHER	05 SPECIFICS UNKNOWN
	B. Left Roadside Departure	06  DRIVE OFF ROAD	07  CONTROL/ TRACTION LOSS	08  AVOID COLLISION WITH VEH., PED., ANIM.	09 SPECIFICS OTHER	10 SPECIFICS UNKNOWN
	C. Forward Impact	11  PARKED VEH.	12  STA. OBJECT	13  PEDESTRIAN/ ANIMAL	14  END DEPARTURE	15 SPECIFICS OTHER 16 SPECIFICS UNKNOWN
II. Same Trafficway Same Direction	D. Rear-End	20  STOPPED 21, 22, 23	21  SLOWER 25, 26, 27	22  DECEL. 29, 30, 31	23  SPECIFICS OTHER	24  SPECIFICS UNKNOWN
	E. Forward Impact	34  CONTROL/ TRACTION LOSS	35  CONTROL/ TRACTION LOSS	36  AVOID COLLISION WITH VEH.	37  AVOID COLLISION WITH OBJECT	38  SPECIFICS OTHER 39  SPECIFICS UNKNOWN
	F. Sideswipe Angle	44  SPECIFICS OTHER	45  SPECIFICS OTHER	46  SPECIFICS OTHER	47  SPECIFICS OTHER	48  SPECIFICS OTHER 49  SPECIFICS UNKNOWN
III. Same Trafficway Opposite Direction	G. Head-On	50  LATERAL MOVE	51  SPECIFICS OTHER	52  SPECIFICS UNKNOWN	53  SPECIFICS UNKNOWN	54  SPECIFICS UNKNOWN
	H. Forward Impact	54  CONTROL/ TRACTION LOSS	55  CONTROL/ TRACTION LOSS	56  AVOID COLLISION WITH VEH.	57  AVOID COLLISION WITH OBJECT	58  SPECIFICS OTHER 59  SPECIFICS UNKNOWN
	I. Sideswipe Angle	64  LATERAL MOVE	65  SPECIFICS OTHER	66  SPECIFICS UNKNOWN	67  SPECIFICS UNKNOWN	68  SPECIFICS UNKNOWN
IV. Change Trafficway Vehicle Turning	J. Turn Across Path	68  INITIAL OPPOSITE DIRECTIONS	69  INITIAL SAME DIRECTIONS	70  SPECIFICS OTHER	71  SPECIFICS UNKNOWN	72  SPECIFICS UNKNOWN
	K. Turn Into Path	76  TURN INTO SAME DIRECTION	77  TURN INTO OPPOSITE DIRECTIONS	78  SPECIFICS OTHER	79  SPECIFICS UNKNOWN	80  SPECIFICS UNKNOWN
V. Intersecting Paths (Vehicle Damage)	L. Straight Paths	86  SPECIFICS OTHER	87  SPECIFICS UNKNOWN	88  SPECIFICS UNKNOWN	89  SPECIFICS UNKNOWN	90  SPECIFICS UNKNOWN
VI. Miscellaneous	M. Backing Etc.	92  BACKING VEH.	93  OTHER VEH. OR OBJECT	94  95  96  97 	98 Other Accident Type	99 Unknown Accident Type

## 29. Basis for Total Delta V (Highest)

1

## Delta V Calculated

- (1) CRASH program – damage only routine
- (2) CRASH program – damage and trajectory routine
- (3) Missing vehicle algorithm

## Delta V Not Calculated

- (4) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.
- (5) All vehicles within scope (CDC applicable) of CRASH program but one of the collision conditions is beyond the scope of the CRASH program or other acceptable reconstruction techniques, regardless of adequacy of damage data.
- (6) All vehicles and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available.

**COMPUTER GENERATED DELTA V**

Secondary Highest

## 30. Total Delta V

2726.8 Nearest mph

(NOTE: 00 means less than  
0.5 mph)  
(97) 96.5 mph and above  
(99) Unknown

## 31. Longitudinal Component of Delta V

+  
⊖ 26-25.9 Nearest mph

(NOTE: —00 means greater than  
–0.5 and less than +0.5 mph)  
(± 97) ± 96.5 mph and above  
(— 99) Unknown

Secondary Highest

## 32. Lateral Component of Delta V

⊕ 07+ 6.9 Nearest mph

(NOTE: —00 means greater than  
–0.5 and less than +0.5 mph)  
(± 97) ± 96.5 mph and above  
(— 99) Unknown

## 33. Energy Absorption

060,50060551.6 Nearest 100 foot-lbs

(NOTE: 0000 means less than 50 Foot-Lbs)  
(9997) 999,650 foot-lbs or more  
(9999) Unknown

## 34. Confidence in Reconstruction Program Results (for Highest Delta V)

1

- (0) No reconstruction
- (1) Collision fits model – results appear reasonable
- (2) Collision fits model – results appear high
- (3) Collision fits model – results appear low
- (4) Borderline reconstruction – results appear reasonable

## 35. Type of Vehicle Inspection

1

- (0) No Inspection
- (1) Complete inspection
- (2) Partial inspection (specify):

## 36. Is this an AOPS Vehicle?

- (0) No
- (1) Yes

\*\*\* STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV35 = 0), \*\*\*  
DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS.

## EXTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number	90-16	3. Vehicle Number	01
2. Case Number - Stratum			

## VEHICLE IDENTIFICATION

VIN WDBEB33D5HA [REDACTED] Model Year 1987  
Vehicle Make (specify): MERCEDES-BENZ Vehicle Model (specify): 300DT

## LOCATOR

Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage	Location of Field L
1	FRONT BUMPER FACIA AND REBAR	ENTIRE WIDTH OF BUMPER
	31" FROM LEFT CORNER	REBAR

## CRUSH PROFILE

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

Measure and document on the vehicle diagram the location of maximum crush.

Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.

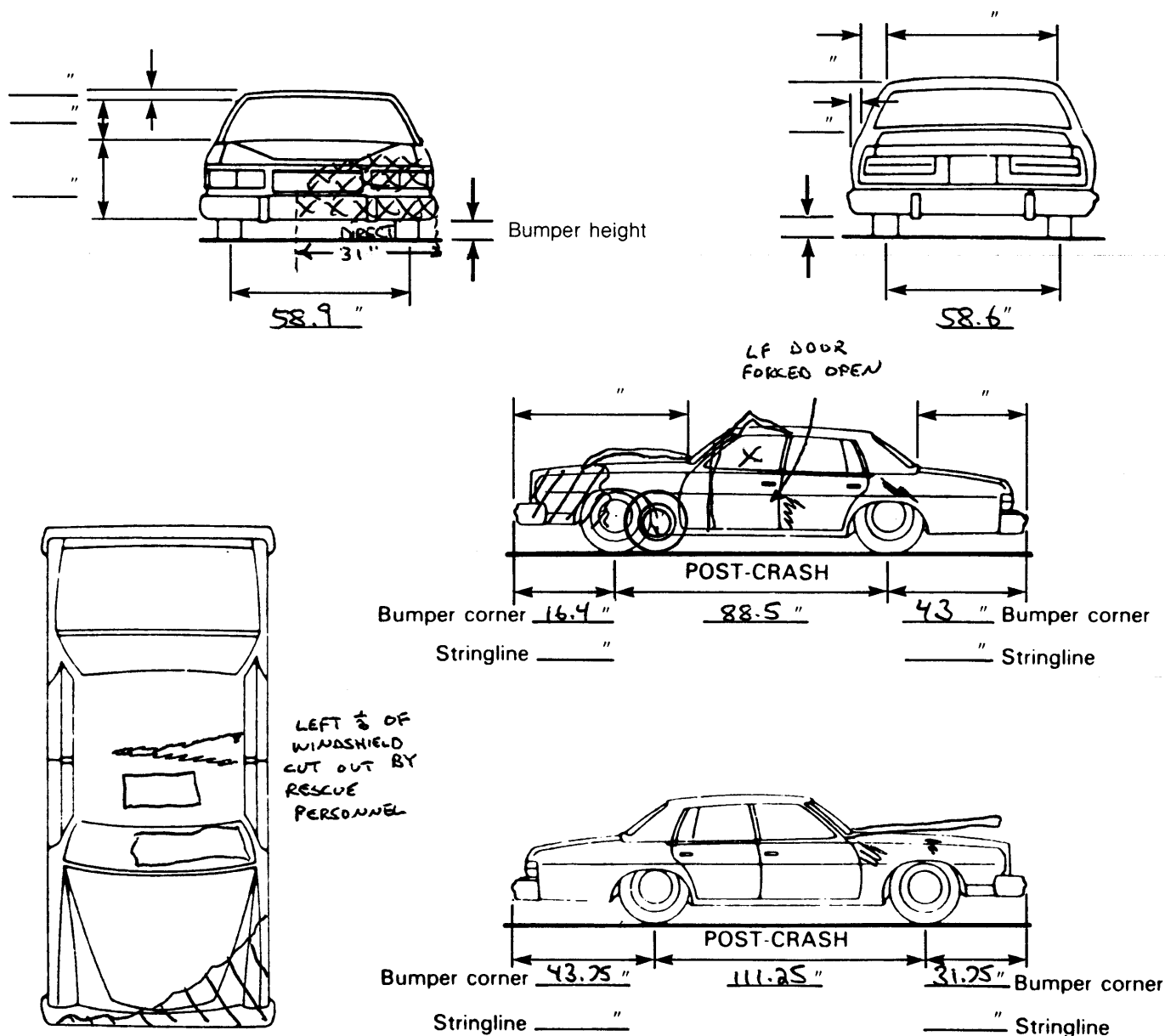
Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

Use as many lines/columns as necessary to describe each damage profile.

[illegible]

## VEHICLE DAMAGE SKETCH

<b>TIRE – WHEEL DAMAGE</b> a. Rotation physically restricted RF _____ LF <u>1</u> RR _____ LR _____ (1) Yes (2) No (8) NA (9) Unk.		<b>ORIGINAL SPECIFICATIONS</b> Wheelbase <u>110.2</u> Overall Length <u>187.2</u> Maximum Width <u>68.5</u> Curb Weight <u>3325</u> Average Track <u>58.25</u> Front Overhang _____ Rear Overhang _____ Engine Size: cyl./ displ. <u>3.0 liter, 6cyl</u> Undeformed End Width <u>59.5"</u>		<b>WHEEL STEER ANGLES</b> (For locked front wheels or displaced rear axles only) RF ± _____ ° LF ± _____ ° RR ± _____ ° LR ± _____ ° Within ± 5 degrees
<b>TYPE OF TRANSMISSION</b> <input type="checkbox"/> Manual <input checked="" type="checkbox"/> Automatic		<b>DRIVE WHEELS</b> <input type="checkbox"/> FWD <input checked="" type="checkbox"/> RWD <input type="checkbox"/> 4WD		
		Approximate Cargo Weight <u>N/A</u>		



NOTES: Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewall, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.



## CDC WORKSHEET

## CODES FOR OBJECT CONTACTED

## 01-30 – Vehicle Number

## Noncollision

- (31) Overturn – rollover  
 (32) Fire or explosion  
 (33) Jackknife  
 (34) Other intraunit damage (specify):

- (35) Noncollision injury  
 (38) Other noncollision (specify):

## (39) Noncollision – details unknown

## Collision with Fixed Object

- (41) Tree ( $\leq 4$  inches in diameter)  
 (42) Tree ( $> 4$  inches in diameter)  
 (43) Shrubbery or bush  
 (44) Embankment

## (45) Breakaway pole or post (any diameter)

## Nonbreakaway Pole or Post

- (50) Pole or post ( $\leq 4$  inches in diameter)  
 (51) Pole or post ( $> 4$  but  $\leq 12$  inches in diameter)  
 (52) Pole or post ( $> 12$  inches in diameter)  
 (53) Pole or post (diameter unknown)

- (54) Concrete traffic barrier  
 (55) Impact attenuator  
 (56) Other traffic barrier (specify):

- (57) Fence  
 (58) Wall  
 (59) Building  
 (60) Ditch or Culvert  
 (61) Ground  
 (62) Fire hydrant  
 (63) Curb  
 (64) Bridge  
 (68) Other fixed object (specify):

## (69) Unknown fixed object

## Collision With Nonfixed Object

- (71) Motor vehicle not in transport  
 (72) Pedestrian  
 (73) Cyclist or cycle  
 (74) Other nonmotorist or conveyance (specify):

- (75) Vehicle occupant  
 (76) Animal  
 (77) Train  
 (78) Trailer, disconnected in transport  
 (88) Other nonfixed object (specify):

## (89) Unknown nonfixed object

## (98) Other event (specify):

## (99) Unknown event or object

## DEFORMATION CLASSIFICATION BY EVENT NUMBER

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force (degrees)	Incremental Value of Shift	(3) Deformation Location	(4) Specific Longitudinal or Lateral Location	(5) Specific Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
<u>01</u>	<u>02</u>	<u>-15</u>	<u>00</u>	<u>F</u>	<u>Y</u>	<u>E</u>	<u>W</u>	<u>03</u>
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
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—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

**COLLISION DEFORMATION CLASSIFICATION****HIGHEST DELTA "V"**

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Specific Longitudinal or Lateral Location	(5) Specific Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. <u>01</u>	5. <u>02</u>	6. <u>12</u>	7. <u>F</u>	8. <u>Y</u>	9. <u>E</u>	10. <u>W</u>	11. <u>03</u>

**Second Highest Delta "V"**

12. <u>   </u>	13. <u>   </u>	14. <u>   </u>	15. <u>   </u>	16. <u>   </u>	17. <u>   </u>	18. <u>   </u>	19. <u>   </u>
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**CRUSH PROFILE**

(The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. ALL MEASUREMENTS ARE IN INCHES.)

**HIGHEST DELTA "V"**

20. <u>   </u>	21. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	22. + - D
L	C1	C2	C3	C4	C5	C6	
<u>041</u>	<u>34</u>	<u>20</u>	<u>15</u>	<u>07</u>	<u>02</u>	<u>01</u>	<u>000</u>

**Second Highest Delta "V"**

23. <u>   </u>	24. <u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	25. + - D
L	C1	C2	C3	C4	C5	C6	
<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>	<u>   </u>

26. Are CDCs Documented  
but Not Coded on The  
Automated File

(0) No  
(1) Yes

0

27. Researcher's Assessment  
of Vehicle Disposition

(0) Not towed due to  
vehicle damage  
(1) Towed due to  
vehicle damage  
(9) Unknown

1

28. Original Wheelbase

110.2 Code to the  
nearest  
tenth of an inch  
(9999) Unknown

110.2

\*\*\* STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED \*\*\*  
(I.E., GV09 = 0 OR 9), DO NOT COMPLETE THE INTERIOR VEHICLE FORM.



# INTERIOR VEHICLE FORM

1. Primary Sampling Unit Number

2. Case Number - ~~Stratum~~

3. Vehicle Number

## INTEGRITY

4. Passenger Compartment Integrity

(00) No integrity loss

Yes, Integrity Was Lost Through

- (01) Windshield
- (02) Door (side)
- (03) Door/hatch (rear)
- (04) Roof
- (05) Roof glass
- (06) Side window
- (07) Rear window
- (08) Roof and roof glass
- (09) Windshield and door (side)
- (10) Windshield and roof
- (11) Side and rear window
- (98) Other combination of above (specify):

(99) Unknown

## Door, Tailgate Or Hatch Opening

5. LF 3 6. RF 1 7. LR 1 8. RR 1 9. TG/H 0

- (0) No door/gate/hatch
- (1) Door/gate/hatch remained closed and operational
- (2) Door/gate/hatch came open during collision
- (3) Door/gate/hatch jammed shut
- (8) Other (specify):

(9) Unknown

## Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09 = 2, Then Code 0.

10. LF 0 11. RF 0 12. LR 0 13. RR 0 14. TG/H 0

(0) No door/gate/hatch or door not opened

Door, Tailgate, or Hatch Came Open During Collision

- (1) Door operational (no damage)
- (2) Latch/striker failure due to damage
- (3) Hinge failure due to damage
- (4) Door structure failure due to damage
- (5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage
- (6) Latch/striker and hinge failure due to damage
- (8) Other failure (specify):

(9) Unknown

## GLAZING

### Glazing Damage from Impact Forces

15. WS 2 16. LF 6 17. RF 0 18. LR 0 19. RR 0  
20. BL 0 21. Roof 8 22. Other 8

- (0) No glazing damage from impact forces REMOVED BY
- (2) Glazing in place and cracked from impact forces RESCUE
- (3) Glazing in place and holed from impact forces PERSONNEL
- (4) Glazing out-of-place (cracked or not) and not holed from impact forces
- (5) Glazing out-of-place and holed from impact forces
- (6) Glazing disintegrated from impact forces
- (7) Glazing removed prior to accident
- (8) No glazing
- (9) Unknown if damaged

### Glazing Damage from Occupant Contact

23. WS 0 24. LF 0 25. RF 0 26. LR 0 27. RR 0  
28. BL 0 29. Roof 0 30. Other 0

- (0) No occupant contact to glazing or no glazing
- (1) Glazing contacted by occupant but no glazing damage
- (2) Glazing in place and cracked by occupant contact
- (3) Glazing in place and holed by occupant contact
- (4) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact
- (5) Glazing out-of-place by occupant contact and holed by occupant contact
- (6) Glazing disintegrated by occupant contact
- (9) Unknown if contacted by occupant

If No Glazing Damage **And** No Occupant Contact or No Glazing, Then Code IV 31 Through IV 46 As 0

### Type of Window/Windshield Glazing

31. WS 1 32. LF 2 33. RF 2 34. LR 2 35. RR 2  
36. BL 2 37. Roof 0 38. Other 0

- (0) No glazing contact and no damage, or no glazing
- (1) AS-1 - Laminated
- (2) AS-2 - Tempered
- (3) AS-3 - Tempered-tinted
- (4) AS-14 - Glass/Plastic
- (8) Other (specify):

(9) Unknown

### Window Precrash Glazing Status

39. WS 1 40. LF 2 41. RF 2 42. LR 2 43. RR 2  
44. BL 1 45. Roof 0 46. Other 0

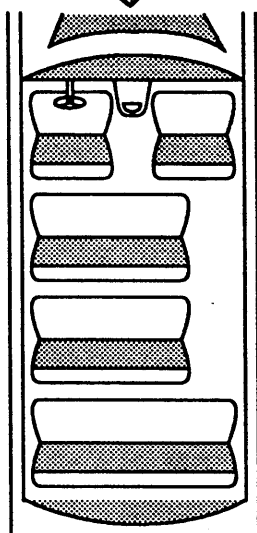
- (0) No glazing contact and no damage, or no glazing
- (1) Fixed
- (2) Closed
- (3) Partially opened
- (4) Fully opened
- (9) Unknown

## INTRUSION WORK SHEET

TOP  
VIEW

Longitudinal

Lateral

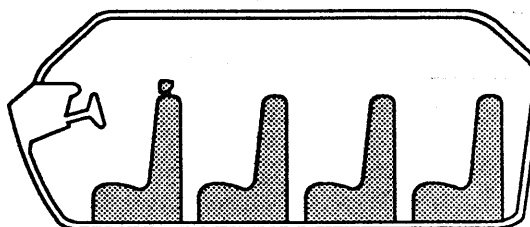


Longitudinal

LEFT SIDE  
VIEW

Vertical

Longitudinal

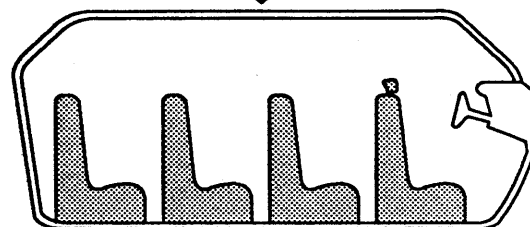


Longitudinal

RIGHT SIDE  
VIEW

Vertical

Longitudinal



Longitudinal

Vertical

Note: Sketch intruded areas

LOCATION OF INTRUSION	INTRUDED COMPONENT	COMPARISON VALUE	-	INTRUDED VALUE	=	INTRUSION	DOMINANT CRUSH DIRECTION
11	06	37.25	-	28.75	=	8.5	2
11	01	64.0	-	61.5	=	2.5	2
11	05	53.25	-	37.5	=	15.75	2
11	01	37.5	-	36.0	=	1.5	3
11	02	33.25	-	24.75	=	8.5	2
21	17		-		=	4.5	1
23	17		-		=	3.5	1
			-		=		
			-		=		
			-		=		
			-		=		
			-		=		
			-		=		
			-		=		
			-		=		

Document no more than the 15 most severe intrusions

## OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV 47-IV 86 blank.

	Location of Intrusion	Intruding Component	Magnitude of Intrusion	Dominant Crush Direction
1st	47 <u>11</u>	48 <u>06</u>	49 <u>3</u>	50 <u>2</u>
2nd	51 <u>11</u>	52 <u>01</u>	53 <u>1</u>	54 <u>2</u>
3rd	55 <u>11</u>	56 <u>05</u>	57 <u>4</u>	58 <u>2</u>
4th	59 <u>11</u>	60 <u>01</u>	61 <u>1</u>	62 <u>3</u>
5th	63 <u>11</u>	64 <u>02</u>	65 <u>3</u>	66 <u>2</u>
6th	67 <u>21</u>	68 <u>17</u>	69 <u>2</u>	70 <u>1</u>
7th	71 <u>23</u>	72 <u>17</u>	73 <u>2</u>	74 <u>1</u>
8th	75 _____	76 _____	77 _____	78 _____
9th	79 _____	80 _____	81 _____	82 _____
10th	83 _____	84 _____	85 _____	86 _____

## LOCATION OF INTRUSION

## Front Seat

- (11) Left
- (12) Middle
- (13) Right

## Second Seat

- (21) Left
- (22) Middle
- (23) Right

## Third Seat

- (31) Left
- (32) Middle
- (33) Right

## Fourth Seat

- (41) Left
- (42) Middle
- (43) Right

(98) Other enclosed area (specify): \_\_\_\_\_

(99) Unknown

## INTRUDING COMPONENT

## Interior Components

- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Door panel
- (12) Roof (or convertible top)
- (13) Roof side rail
- (14) Windshield
- (15) Windshield header
- (16) Window frame
- (17) Floor pan
- (18) Backlight header
- (19) Front seat back
- (20) Second seat back
- (21) Third seat back
- (22) Fourth seat back
- (23) Fifth seat back
- (24) Seat cushion
- (25) Back panel or door surface
- (26) Other interior component (specify): \_\_\_\_\_

- (27) Side panel - forward of the A-pillar
- (28) Side panel - rear of the A-pillar

## Exterior Components

- (30) Hood
- (31) Outside surface of vehicle (specify): \_\_\_\_\_
- (32) Other exterior object in the environment (specify): \_\_\_\_\_
- (33) Unknown exterior object
- (98) Intrusion of unlisted component(s) (specify): \_\_\_\_\_
- (99) Unknown

## MAGNITUDE OF INTRUSION

- (1)  $\geq 1$  inch but  $< 3$  inches
- (2)  $\geq 3$  inches but  $< 6$  inches
- (3)  $\geq 6$  inches but  $< 12$  inches
- (4)  $\geq 12$  inches but  $< 18$  inches
- (5)  $\geq 18$  inches but  $< 24$  inches
- (6)  $\geq 24$  inches
- (9) Unknown

## DOMINANT CRUSH DIRECTION

- (1) Vertical
- (2) Longitudinal
- (3) Lateral
- (9) Unknown

# STEERING COLUMN WORKING DIAGRAMS

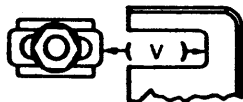
## STEERING COLUMN COLLAPSE

Steering Column Shear Module Movement



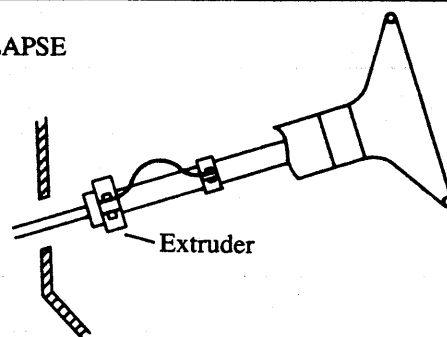
SHEAR CAPSULE

Left \_\_\_\_



Right \_\_\_\_ V = \_\_\_\_"

Direction and Magnitude of Steering Column Movement



Extruder

After Compression

Flare Tube

Possible Remaining Starter Grooves At 6 and 12 o'clock

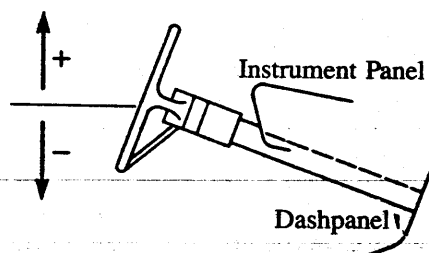
Extruder

Compression = Measurement A

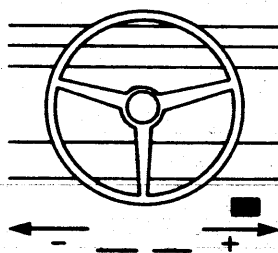
A = \_\_\_\_

## STEERING COLUMN MOVEMENT

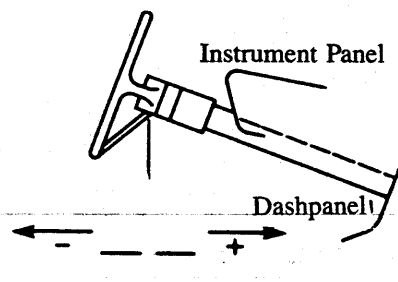
Vertical Movement



Lateral Movement



Longitudinal Movement



	COMPARISON VALUE	—	DAMAGED VALUE	=	MOVEMENT
VERTICAL		—		=	
LATERAL	37.5	—	36.0	=	1.5
LONGITUDINAL	64.0	—	61.5	=	2.5

## STEERING RIM/SPOKE DEFORMATION

COMPARISON VALUE	—	DAMAGED VALUE	=	DEFORMATION
	—		=	
	—		=	



## STEERING COLUMN

87. Steering Column Type 3

- (1) Fixed column  
 (2) Tilt column  
 (3) Telescoping column ELECTRICALLY  
 (4) Tilt and telescoping column CONTROLLED  
 (8) Other column type (specify): \_\_\_\_\_

(9) Unknown

If PDOF  $\neq$  11, 12 or 1, Then Code IV88-IV91 As 96

88. Steering Column Collapse Due to Occupant Loading 97

\_\_\_\_\_ Code actual measured movement to the nearest inch. See coding manual for measurement technique(s).

- (00) No movement, compression, or collapse  
 (01-49) Actual measured value  
 (50) 50 inches or greater

Estimated movement from observation

- (81) Less than 1 inch  
 (82)  $\geq 1$  inch but  $< 2$  inches  
 (83)  $\geq 2$  inches but  $< 4$  inches  
 (84)  $\geq 4$  inches but  $< 6$  inches  
 (85)  $\geq 6$  inches but  $< 8$  inches  
 (86) Greater than or equal to 8 inches  
 (96) Not assessed (PDOF  $\neq$  11, 12, 1)  
 (97) Apparent movement, value undetermined or cannot be measured or estimated  
 (98) Nonspecified type column  
 (99) Unknown

## Direction And Magnitude of Steering Column Movement

89. Vertical Movement 8190. Lateral Movement 0291. Longitudinal Movement 03

Code the actual measured movement to the nearest inch. See Coding Manual for measurement technique(s)

- (+00) No Steering column movement  
 ( $\pm 01 - \pm 49$ ) Actual measured value  
 ( $\pm 50$ ) 50 inches or greater

Estimated movement from observation

- ( $\pm 81$ )  $\geq 1$  inch but  $< 3$  inches  
 ( $\pm 82$ )  $\geq 3$  inches but  $< 6$  inches  
 ( $\pm 83$ )  $\geq 6$  inches but  $< 12$  inches  
 ( $\pm 84$ )  $\geq 12$  inches  
 (\_\_\_96) Not assessed (PDOF  $\neq$  11, 12, 1)  
 (\_\_\_97) Apparent movement  $> 1$  inch but cannot be measured or estimated  
 (\_\_\_99) Unknown

92. Steering Rim/Spoke Deformation 2

\_\_\_\_\_ Code actual measured deformation to the nearest inch.

- (0) No steering rim deformation  
 (1-5) Actual measured value  
 (6) 6 inches or more  
 (8) Observed deformation cannot be measured  
 (9) Unknown

93. Location of Steering Rim/Spoke Deformation 00

(00) No steering rim deformation

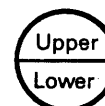
Quarter Sections

- (01) Section A  
 (02) Section B  
 (03) Section C  
 (04) Section D



Half Sections

- (05) Upper half of rim/spoke  
 (06) Lower half of rim/spoke  
 (07) Left half of rim/spoke  
 (08) Right half of rim/spoke



- (09) Complete steering wheel collapse  
 (10) Undetermined location  
 (99) Unknown

## INSTRUMENT PANEL

94. Odometer Reading 073,000

22,723 miles—Code mileage to the nearest 1,000 miles

- (000) No odometer  
 (001) Less than 1,500 miles  
 (300) 299,500 miles or more  
 (999) Unknown

Source: \_\_\_\_\_

95. Instrument Panel Damage from Occupant Contact 0

- (0) No  
 (1) Yes  
 (9) Unknown

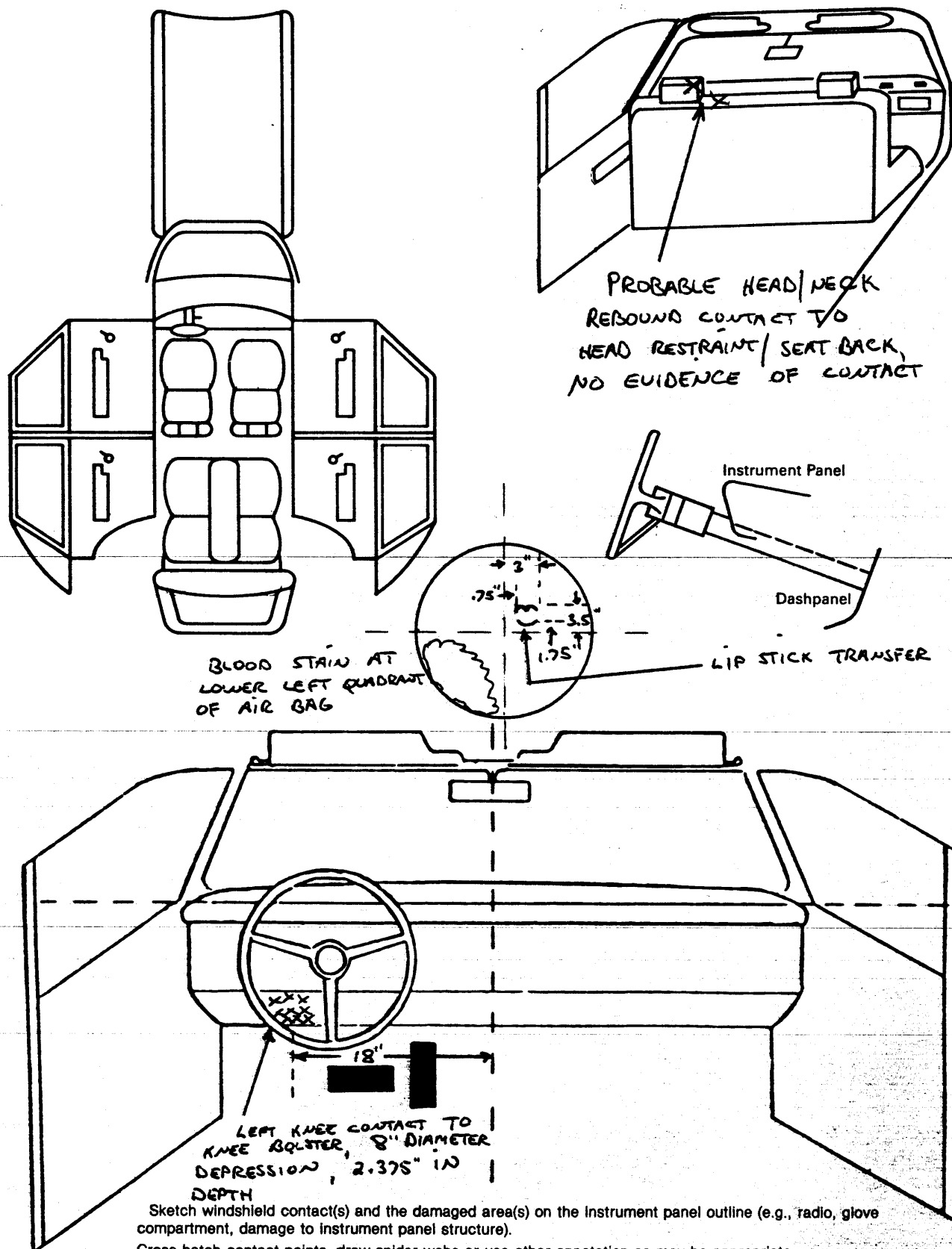
96. Knee Bolsters Deformed from Occupant Contact 1

- (0) No  
 (1) Yes  
 (8) Not present  
 (9) Unknown

97. Did Glove Compartment Door Open During Collision(s) 0

- (0) No  
 (1) Yes  
 (8) Not present  
 (9) Unknown

## VEHICLE INTERIOR SKETCHES



Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure).

Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.

Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.

## POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A	13	1	LEFT KNEE	8"X2.375" DEPRESSION	1
B	45	1	FACE	LIP STICK TRANSFERS	1
C					
D					
E					
F					
G					
H					
I					
J					
K					
L					
M					
N					

## CODES FOR INTERIOR COMPONENTS

## FRONT

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A-pillar, instrument panel, or mirror (passenger side only)
- (16) Other front object (specify): \_\_\_\_\_

- (26) Left side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail
- (27) Other left side object (specify): \_\_\_\_\_

- (48) Child safety seat (specify): \_\_\_\_\_

- (49) Other interior object (specify): \_\_\_\_\_

## RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A pillar
- (33) Right B pillar
- (34) Other right pillar (specify): \_\_\_\_\_
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail
- (37) Other right side object (specify): \_\_\_\_\_

## ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

## FLOOR

- (56) Floor including toe pan
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

## REAR

- (60) Backlight (rear window)
- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): \_\_\_\_\_

## INTERIOR

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar attachment point
- (43) Other restraint system component (specify): \_\_\_\_\_
- (44) Head restraint system
- (45) Air cushion
- (46) Other occupants (specify): \_\_\_\_\_
- (47) Interior loose objects

## LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A pillar
- (23) Left B pillar
- (24) Other left pillar (specify): \_\_\_\_\_
- (25) Left side window glass or frame

## CONFIDENCE LEVEL OF CONTACT POINT

- (1) Certain
- (2) Probable
- (3) Possible
- (4) Unknown

# AUTOMATIC RESTRAINTS

NOTES: Encode the data for each applicable front seat position. The attributes for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
F I R S T	Availability	1	-	0
	Function	4	-	-
	Failure	1	-	-

## Automatic (Passive) Restraint System Availability

- (0) Not equipped/not available
- (1) Airbag
- (2) Airbag disconnected (specify): \_\_\_\_\_
- (3) Airbag not reinstalled
- (4) 2 point automatic belts
- (5) 3 point automatic belts
- (6) Automatic belts destroyed or rendered inoperative
- (9) Unknown

## Automatic (Passive) Restraint Function

- (0) Not equipped/not available

### Automatic Belt

- (1) Automatic belt in use
- (2) Automatic belt not in use
- (3) Automatic belt use unknown

### Air Bag

- (4) Airbag deployed during accident
- (5) Airbag deployed inadvertently just prior to accident
- (6) Deployed, accident sequence undetermined
- (7) Nondeployed
- (8) Unknown if deployed
- (9) Unknown

## Did Automatic (Passive) Restraint Fail

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): \_\_\_\_\_
- (9) Unknown

## MANUAL RESTRAINTS

NOTES: Encode the applicable data for each seat position in the vehicle. The attributes for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

If a child safety seat is present, encode the data on the back of this page.

If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

		Left	Center	Right
FIRST	Availability	4	-	4
	Use	04	-	-
	Failure Modes	1	-	-
SECOND	Availability			
	Use			
	Failure Modes			
THIRD	Availability			
	Use			
	Failure Modes			
OTHER	Availability			
	Use			
	Failure Modes			

## Manual (Active) Belt System Availability

- (0) Not available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available – type unknown
- (8) Other belt (specify):

(9) Unknown

(08) Other belt used (specify):

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat – type unknown
- (18) Other belt used with child safety seat (specify):

(99) Unknown if belt used

## Manual (Active) Belt System Use

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify):
- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used – type unknown

## Manual (Active) Belt Failure Modes During Accident

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Manual belt failure(s) (encode all that apply above)
  - [A] Torn webbing (stretched webbing not included)
  - [B] Broken buckle or latchplate
  - [C] Upper anchorage separated
  - [D] Other anchorage separated (specify):
- [E] Broken retractor
- [F] Other manual belt failure (specify):

(9) Unknown

**CHILD SAFETY SEAT FIELD ASSESSMENT**

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

Occupant Number						
1. Type of Child Safety Seat						
2. Child Safety Seat Orientation						
3. Child Safety Seat Harness Usage						
4. Child Safety Seat Shield Usage						
5. Child Safety Seat Tether Usage						
6. Child Safety Seat Make/Model	Specify Below for Each Child Safety Seat					

**1. Type of Child Safety Seat**

- (0) No child safety seat  
 (1) Infant seat  
 (2) Toddler seat  
 (3) Convertible seat  
 (4) Booster seat  
 (7) Other type child safety seat (specify):  
 \_\_\_\_\_

- (8) Unknown child safety seat type  
 (9) Unknown if child safety seat used

**2. Child Safety Seat Orientation**

- (00) No child safety seat  
 Designed for Rear Facing for This Age/Weight  
 (01) Rear facing  
 (02) Forward facing  
 (03) Other orientation (specify):  
 \_\_\_\_\_  
 (04) Unknown orientation  
 Designed for Forward Facing for This Age/Weight  
 (11) Rear facing  
 (12) Forward facing  
 (18) Other orientation (specify):  
 \_\_\_\_\_  
 (19) Unknown orientation  
 Unknown Design or Orientation for This Age/Weight, or Unknown Age/Weight  
 (21) Rear facing  
 (22) Forward facing  
 (28) Other orientation (specify):  
 \_\_\_\_\_

(29) Unknown orientation

(99) Unknown if child safety seat used

**3. Child Safety Seat Harness Usage****4. Child Safety Seat Shield Usage****5. Child Safety Seat Tether Usage**

Note: Options Below Are Used for Variables 3-5.

- (00) No child safety seat  
 Not Designed with Harness/Shield/Tether  
 (01) After market harness/shield/tether added, not used  
 (02) After market harness/shield/tether used  
 (03) Child safety seat used, but no after market harness/shield/tether added  
 (09) Unknown if harness/shield/tether added or used  
 Designed with Harness/Shield/Tether  
 (11) Harness/shield/tether not used  
 (12) Harness/shield/tether used  
 (19) Unknown if harness/shield/tether used

- Unknown if Designed with Harness/Shield/Tether  
 (21) Harness/shield/tether not used  
 (22) Harness/shield/tether used  
 (29) Unknown if harness/shield/tether used  
 (99) Unknown if child safety seat used

**6. Child Safety Seat Make/Model**  
 (Specify make/model and occupant number)

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**HEAD RESTRAINTS/SEAT EVALUATION**

NOTES: Encode the applicable data for **each seat position** in the vehicle. The attributes for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
<b>FIRST</b>	Head Restraint Type/Damage	3	-	3
	Seat Type	01	-	01
	Seat Performance	1	-	1
<b>SECOND</b>	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
<b>THIRD</b>	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
<b>OTHER</b>	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			

**Head Restraint Type/Damage by Occupant at This Occupant Position**

- (0) No head restraints
- (1) Integral – no damage
- (2) Integral – damaged during accident
- (3) Adjustable – no damage
- (4) Adjustable – damaged during accident
- (5) Add-on – no damage
- (6) Add-on – damaged during accident
- (8) Other (specify): \_\_\_\_\_
- (9) Unknown

**Seat Type (This Occupant Position)**

- (00) No seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., van type)
- (09) Other seat type (specify): \_\_\_\_\_
- (99) Unknown

**Seat Performance (This Occupant Position)**

- (0) No seat
- (1) No seat performance failure(s)
- (2) Seat performance failure(s)  
(Encode all that apply)
- [A] Seat adjusters failed
- [B] Seat back folding locks failed
- [C] Seat tracks failed
- [D] Seat anchors failed
- [E] Deformed by impact of passenger from rear
- [F] Deformed by impact of passenger from front
- [G] Deformed by own inertial forces
- [H] Deformed by passenger compartment intrusion (specify): \_\_\_\_\_

[I] Other (specify): \_\_\_\_\_

(9) Unknown

**DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE (I.E. UNUSUAL OCCUPANT CONTACT PATTERN)**

**EJECTION/ENTRAPMENT DATA**

Complete the following if the researcher has any indications that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occupant Assessment Form.

Describe indications of ejection and body parts involved in partial ejection(s):

Occupant Number						
Ejection						
Ejection Area						
Ejection Medium						
Medium Status						

**Ejection**

- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

**Ejection Area**

- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear

**(7) Roof**

- (8) Other area (e.g., back of pickup, etc.) (specify):

**(9) Unknown****Ejection Medium**

- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify):

**(5) Integral structure**

- (8) Other medium (specify):

**(9) Unknown****Medium Status (Immediately Prior to Impact)**

- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

Describe entrapment mechanism:

Component(s):

(Note in vehicle interior diagram)

APPENDIX E

NASS Occupant Forms



## OCCUPANT ASSESSMENT FORM

1. Primary Sampling Unit Number     

2. Case Number - ~~Stratum~~ 90-16

3. Vehicle Number 01

4. Occupant Number 01

### OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 43

Code actual age at time of accident.

(00) Less than one year old (specify by month):

(97) 97 years and older

(99) Unknown

6. Occupant's Sex 2

(1) Male

(2) Female

(9) Unknown

7. Occupant's Height 65

Code actual height to the nearest inch.

(99) Unknown

8. Occupant's Weight 120

Code actual weight to the nearest pound.

(999) Unknown

9. Occupant's Role 1

(1) Driver

(2) Passenger

(9) Unknown

10. Occupant's Seat Position 11

Front Seat

(11) Left side

(12) Middle

(13) Right side

(14) Other (specify):     

Second Seat

(21) Left side

(22) Middle

(23) Right side

(24) Other (specify):     

Third Seat

(31) Left side

(32) Middle

(33) Right side

(34) Other (specify):     

Fourth Seat

(41) Left side

(42) Middle

(43) Right side

(44) Other (specify):     

(97) In or on unenclosed area

(98) Other seat (specify):     

(99) Unknown

11. Occupant's Posture 0

(0) Normal posture

(1) Abnormal posture (specify):     

(9) Unknown

### EJECTION/ENTRAPMENT

12. Ejection 0

(0) No ejection

(1) Complete ejection

(2) Partial ejection

(3) Ejection, unknown degree

(9) Unknown

13. Ejection Area 0

(0) No ejection

(1) Windshield

(2) Left front

(3) Right front

(4) Left rear

(5) Right rear

(6) Rear

(7) Roof

(8) Other area (e.g., back of pickup, etc.)

(specify):     

(9) Unknown

14. Ejection Medium 0

(0) No ejection

(1) Door/hatch/tailgate

(2) Nonfixed roof structure

(3) Fixed glazing

(4) Nonfixed glazing (specify):     

(5) Integral structure

(8) Other medium (specify):     

(9) Unknown

15. Medium Status (Immediately Prior to Impact) 0

(0) No ejection

(1) Open

(2) Closed

(3) Integral structure

(9) Unknown

16. Entrapment 0

(NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.)

(0) Not entrapped

(1) Entrapped

(9) Unknown

**RESTRAINT SYSTEM AND SEAT EVALUATION****17. Manual (Active) Belt System Availability** 4

- (0) Not available  
 (1) Belt removed/destroyed  
 (2) Shoulder belt  
 (3) Lap belt  
 (4) Lap and shoulder belt  
 (5) Belt available—type unknown  
 (8) Other belt (specify):  
 \_\_\_\_\_

(9) Unknown

**18. Manual (Active) Belt System Use** 04

- (00) None used, not available, or belt removed/destroyed  
 (01) Inoperative (specify):  
 \_\_\_\_\_

- (02) Shoulder belt  
 (03) Lap belt  
 (04) Lap and shoulder belt  
 (05) Belt used—type unknown  
 (08) Other belt used (specify):  
 \_\_\_\_\_

- (12) Shoulder belt used with child safety seat  
 (13) Lap belt used with child safety seat  
 (14) Lap and shoulder belt used with child safety seat  
 (15) Belt used with child safety seat—type unknown  
 (18) Other belt used with child safety seat

(specify): \_\_\_\_\_

(99) Unknown if belt used

**19. Proper Use of Manual (Active) Belts** 1

- (0) None used or not available  
 (1) Belt used properly  
 (2) Belt used properly with child safety seat

**Belt Used Improperly**

- (3) Shoulder belt worn under arm  
 (4) Shoulder belt worn behind back or seat  
 (5) Belt worn around more than one person  
 (6) Lap belt worn on abdomen  
 (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):  
 \_\_\_\_\_

(8) Other improper use of manual belt system (specify):  
 \_\_\_\_\_

(9) Unknown

**20. Manual (Active) Belt Failure Modes During Accident** 1

- (0) No manual belt used or not available  
 (1) No manual belt failure(s)  
 (2) Manual belt failure(s) (check all that apply)  
☐ Torn webbing (stretched webbing not included)  
☐ Broken buckle or latchplate  
☐ Upper anchorage separated  
☐ Other anchorage separated (specify):  
 \_\_\_\_\_

☐ Broken retractor

☐ Other manual belt failure (specify):  
 \_\_\_\_\_

(9) Unknown

**21. Automatic (Passive) Restraint System Availability** 1

- (0) Not equipped/not available  
 (1) Airbag  
 (2) Airbag disconnected (specify):  
 \_\_\_\_\_

- (3) Airbag not reinstalled  
 (4) 2 point automatic belts  
 (5) 3 point automatic belts  
 (6) Automatic belts destroyed or rendered inoperative  
 (9) Unknown

**22. Automatic (Passive) Restraint Function** 4

- (0) Not equipped/not available

**Automatic Belt**

- (1) Automatic belt in use  
 (2) Automatic belt not in use  
 (3) Automatic belt use unknown

**Air Bag**

- (4) Airbag deployed during accident  
 (5) Airbag deployed inadvertently just prior to accident  
 (6) Deployed, accident sequence undetermined  
 (7) Nondeployed  
 (8) Unknown if deployed  
 (9) Unknown

**23. Did Automatic (Passive) Restraint Fail** 1

- (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify):  
 \_\_\_\_\_

(9) Unknown

**24. Police Reported Restraint Use** 2

- (0) None used  
 (1) Police did not indicate restraint use  
 (2) Shoulder belt  
 (3) Lap belt  
 (4) Lap and shoulder belt  
 (5) Belt used, type not specified  
 (6) Child safety seat  
 (7) Other or automatic restraint (specify):  
4 - AIR BAG

(8) Restrained, type unknown

(9) Police indicated "unknown"

**25. Head Restraint Type/Damage by Occupant at This Occupant Position** 3

- (0) No head restraints  
 (1) Integral—no damage  
 (2) Integral—damaged during accident  
 (3) Adjustable—no damage  
 (4) Adjustable—damaged during accident  
 (5) Add-on—no damage  
 (6) Add-on—damaged during accident  
 (8) Other (specify):  
 \_\_\_\_\_

(9) Unknown

26. Seat Type (This Occupant Position) 01
- (00) Occupant not seated or no seat
  - (01) Bucket
  - (02) Bucket with folding back
  - (03) Bench
  - (04) Bench with separate back cushions
  - (05) Bench with folding back(s)
  - (06) Split bench with separate back cushions
  - (07) Split bench with folding back(s)
  - (08) Pedestal (i.e., van type)
  - (09) Other seat type (specify):  
\_\_\_\_\_
  - (99) Unknown

27. Seat Performance (This Occupant Position) 1
- (0) Occupant not seated or no seat
  - (1) No seat performance failure(s)
  - (2) Seat performance failure(s)  
(check all that apply)
  - ☐ Seat adjusters failed
  - ☐ Seat back folding locks failed
  - ☐ Seat tracks failed
  - ☐ Seat anchors failed
  - ☐ Deformed by impact of passenger from rear
  - ☐ Deformed by impact of passenger from front
  - ☐ Deformed by own inertial forces
  - ☐ Deformed by passenger compartment intrusion (specify):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  - ☐ Other (specify):  
\_\_\_\_\_
  - (9) Unknown

### CHILD SAFETY SEAT

28. Child Safety Seat Make/Model 000
- (000) No child safety seat
  - Applicable codes are found in your NASS CDS Data Collection, Coding, and Editing Manual
  - (997) Other make/model (specify):  
\_\_\_\_\_
  - (998) Unknown make/model
  - (999) Unknown if child safety seat used

29. Type of Child Safety Seat 0
- (0) No child safety seat
  - (1) Infant seat
  - (2) Toddler seat
  - (3) Convertible seat
  - (4) Booster seat
  - (7) Other type child safety seat (specify):  
\_\_\_\_\_
  - (8) Unknown child safety seat type
  - (9) Unknown if child safety seat used

30. Child Safety Seat Orientation 00
- (00) No child safety seat
  - Designed for Rear Facing for This Age/Weight
  - (01) Rear facing
  - (02) Forward facing
  - (08) Other orientation (specify):  
\_\_\_\_\_
  - (09) Unknown orientation
  - Designed for Forward Facing for This Age/Weight
  - (11) Rear facing
  - (12) Forward facing
  - (18) Other orientation (specify):  
\_\_\_\_\_
  - (19) Unknown orientation
  - Unknown Design or Orientation for This Age/Weight, or Unknown Age/Weight
  - (21) Rear facing
  - (22) Forward facing
  - (28) Other orientation (specify):  
\_\_\_\_\_
  - (29) Unknown orientation
  - (99) Unknown if child safety seat used

31. Child Safety Seat Harness Usage 00
32. Child Safety Seat Shield Usage 00
33. Child Safety Seat Tether Usage 00
- Note: Options below applicable to Variables OA31-OA33.
- (00) No child safety seat

- Not Designed with Harness/Shield/Tether
- (01) After market harness/shield/tether added, not used
  - (02) After market harness/shield/tether used
  - (03) Child safety seat used, but no after market harness/shield/tether added
  - (09) Unknown if harness/shield/tether added or used

- Designed with Harness/Shield/Tether
- (11) Harness/shield/tether not used
  - (12) Harness/shield/tether used
  - (19) Unknown if harness/shield/tether used
  - Unknown If Designed with Harness/Shield/Tether
  - (21) Harness/shield/tether not used
  - (22) Harness/shield/tether used
  - (29) Unknown if harness/shield/tether used
  - (99) Unknown if child safety seat used



**INJURY CONSEQUENCES****34. Injury Severity (Police Rating)**3

- (0) O – No injury
- (1) C – Possible injury
- (2) B – Nonincapacitating injury
- (3) A – Incapacitating injury
- (4) K – Killed
- (5) U – Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

**35. Treatment – Mortality**3

- (0) No treatment
- (1) Fatal
- (2) Fatal – ruled disease
- Nonfatal
- (3) Hospitalized
- (4) Transported and released
- (5) Treatment at scene – nontransported
- (6) Treatment later
- (8) Treatment – other (specify):  
\_\_\_\_\_

(9) Unknown

**36. Type of Medical Facility (for Initial Treatment)**2

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):  
\_\_\_\_\_

(9) Unknown

**37. Hospital stay**15

\_\_\_\_\_ Code number of days (up through 60)  
that the occupant stayed in the hospital

- (00) Not hospitalized
- (61) 61 days or more
- (99) Unknown

**38. Working Days Lost**61

\_\_\_\_\_ Code the number of days  
(up through 60) that the occupant  
lost from work due to the accident

- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

**39. Time to Death**00

\_\_\_\_\_ Code number of hours from time of  
accident to time of death up through 24  
hours. If time of death is greater than 24  
hours, code number of days. (Note: 1 day =  
31, 2 days = 32, ... n days = 30 + n up through  
30 days = 60)

- (00) Not fatal
- (96) Fatal – ruled disease
- (99) Unknown

**40. 1st Medically Reported Cause of Death**00**41. 2nd Medically Reported Cause of Death**00**42. 3rd Medically Reported Cause of Death**00

\_\_\_\_\_ Code the Occupant Injury from line  
number(s) for the medically reported  
injury(s) which reportedly contributed to  
this occupant's death

- (00) Not fatal or no additional causes
- (97) Other result (specify):  
\_\_\_\_\_

(99) Unknown

**43. Number of Recorded Injuries for  
This Occupant**11

\_\_\_\_\_ Code the actual number of  
injuries recorded for this occupant.

- (00) No recorded injuries
- (97) Injured, details unknown
- (99) Unknown if injured

UPDATE CANDIDATE

NO [☒] YES [ ]

\*\*\* STOP HERE \*\*\*

IF THERE ARE NO RECORDED INJURIES  
(I.E., OA43=00, 97, 99)



## OCCUPANT INJURY FORM

1. ~~Primary Sampling Unit Number~~ — —

3. Vehicle Number

01

2. Case Number — ~~Stratum~~ 90-16

4. Occupant Number

01

### INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	Source of Injury Data	O.I.C.—A.I.S.					Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion No.
		Body Region	Aspect	Lesion	System Organ	A.I.S. Severity				
1st	5. <u>2</u>	6. <u>N</u>	7. <u>P</u>	8. <u>U</u>	9. <u>C</u>	10. <u>4</u>	11. <u>40</u>	12. <u>1</u>	13. <u>1</u>	14. <u>00</u>
2nd	15. <u>2</u>	16. <u>N</u>	17. <u>P</u>	18. <u>Z</u>	19. <u>V</u>	20. <u>3</u>	21. <u>40</u>	22. <u>1</u>	23. <u>1</u>	24. <u>00</u>
3rd	25. <u>2</u>	26. <u>Q</u>	27. <u>L</u>	28. <u>Z</u>	29. <u>J</u>	30. <u>3</u>	31. <u>56</u>	32. <u>1</u>	33. <u>1</u>	34. <u>03</u>
4th	35. <u>2</u>	36. <u>Q</u>	37. <u>R</u>	38. <u>Z</u>	39. <u>J</u>	40. <u>3</u>	41. <u>56</u>	42. <u>1</u>	43. <u>1</u>	44. <u>03</u>
5th	45. <u>2</u>	46. <u>S</u>	47. <u>L</u>	48. <u>C</u>	49. <u>I</u>	50. <u>1</u>	51. <u>41</u>	52. <u>1</u>	53. <u>1</u>	54. <u>00</u>
6th	55. <u>2</u>	56. <u>C</u>	57. <u>C</u>	58. <u>C</u>	59. <u>I</u>	60. <u>1</u>	61. <u>41</u>	62. <u>1</u>	63. <u>1</u>	64. <u>02</u>
7th	65. <u>2</u>	66. <u>M</u>	67. <u>I</u>	68. <u>A</u>	69. <u>I</u>	70. <u>1</u>	71. <u>41</u>	72. <u>1</u>	73. <u>1</u>	74. <u>00</u>
8th	75. <u>2</u>	76. <u>E</u>	77. <u>L</u>	78. <u>C</u>	79. <u>I</u>	80. <u>1</u>	81. <u>20</u>	82. <u>2</u>	83. <u>1</u>	84. <u>00</u>
9th	85. <u>2</u>	86. <u>F</u>	87. <u>L</u>	88. <u>C</u>	89. <u>0</u>	90. <u>1</u>	91. <u>45</u>	92. <u>1</u>	93. <u>1</u>	94. <u>00</u>
10th	95. <u>2</u>	96. <u>F</u>	97. <u>S</u>	98. <u>L</u>	99. <u>I</u>	100. <u>1</u>	101. <u>45</u>	102. <u>1</u>	103. <u>1</u>	104. <u>00</u>

2 small lacerations of the forehead (AIS-1), eyeglasses/air bag

Swelling of the bridge of the nose with epistaxis (AIS-0), eyeglasses/airbag

**AGE** 43  
**SEX** Female  
**WT.** 65 lbs.  
**HT.** 120"

Spinal cord injury (central cord lesion) with paralysis of the upper extremities (AIS-4), rebound contact into seat-back

Bilateral eye contusions (AIS-1), eyeglasses/air bag

Mid-chest contusion (AIS-1), shoulder belt contusions

Compression fracture/dislocation of C-6 with a fracture of the pedicle that extends into the transverse process (AIS-3), rebound contact into seat-back

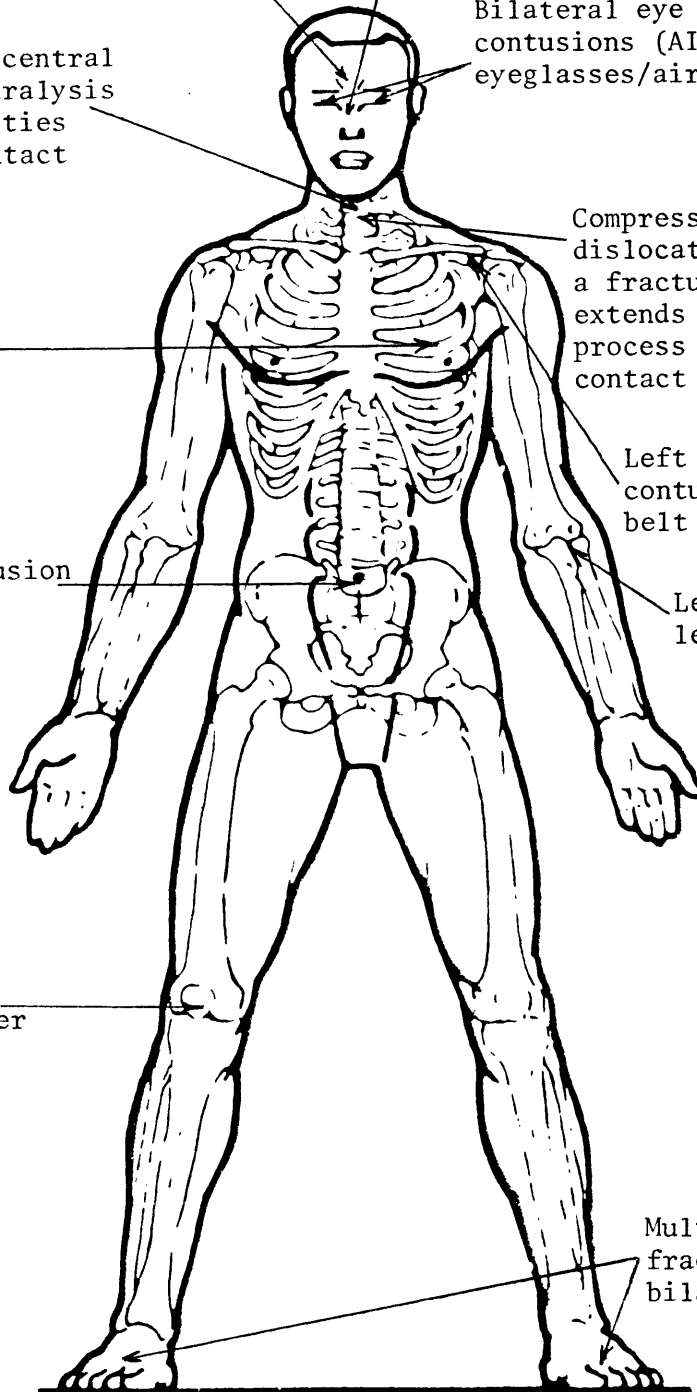
Abdominal wall contusion (AIS-1), lap belt webbing

Left anterior shoulder contusion (AIS-1), shoulder belt contusions

Left elbow contusion (AIS-1), left door panel

Right knee abrasion (AIS-1), knee bolster

Multiple dislocated Lisfranc's fractures of the metatarsals, bilaterally



**SOURCE OF INJURY DATA****OFFICIAL**

- (1) Autopsy records with or without hospital medical records
- (2) Hospital medical records other than emergency room (eg. discharge summary)
- (3) Emergency room records only (including associated X-rays or other lab reports)
- (4) Private physician, walk-in or emergency clinic

**UNOFFICIAL**

- (5) Lay coroner report
- (6) E.M.S. personnel
- (7) Interviewee
- (8) Other source (specify): \_\_\_\_\_

- (9) Police

**INJURY SOURCE****FRONT**

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add-on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A-pillar, instrument panel, or mirror (passenger side only)
- (16) Other front object (specify): \_\_\_\_\_

**LEFT SIDE**

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A pillar
- (23) Left B pillar
- (24) Other left pillar (specify): \_\_\_\_\_
- (25) Left side window glass or frame

- (26) Left side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail
- (27) Other left side object (specify): \_\_\_\_\_

**RIGHT SIDE**

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A pillar
- (33) Right B pillar
- (34) Other right pillar (specify): \_\_\_\_\_
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, roof side rail
- (37) Other right side object (specify): \_\_\_\_\_

**INTERIOR**

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar attachment point
- (43) Other restraint system component (specify): \_\_\_\_\_

- (44) Head restraint system
- (45) Air bag
- (46) Other occupants (specify): \_\_\_\_\_

- (47) Interior loose objects
- (48) Child safety seat (specify): \_\_\_\_\_

- (49) Other interior object (specify): \_\_\_\_\_

**ROOF**

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

**FLOOR**

- (56) Floor including toe pan
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

**REAR**

- (60) Backlight (rear window)
- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): \_\_\_\_\_

**EXTERIOR OF OCCUPANT'S VEHICLE**

- (65) Hood
- (66) Outside hardware (e.g., outside mirror, antenna)
- (67) Other exterior surface or tires (specify): \_\_\_\_\_

- (68) Unknown exterior objects

**EXTERIOR OF OTHER MOTOR VEHICLE**

- (70) Front bumper
- (71) Hood edge
- (72) Other front of vehicle (specify): \_\_\_\_\_

- (73) Hood
- (74) Hood ornament
- (75) Windshield, roof rail, A-pillar
- (76) Side surface
- (77) Side mirrors
- (78) Other side protrusions (specify): \_\_\_\_\_

- (79) Rear surface
- (80) Undercarriage
- (81) Tires and wheels
- (82) Other exterior of other motor vehicle (specify): \_\_\_\_\_

- (83) Unknown exterior of other motor vehicle

**OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT**

- (84) Ground
- (85) Other vehicle or object (specify): \_\_\_\_\_

- (86) Unknown vehicle or object

**NONCONTACT INJURY**

- (90) Fire in vehicle
- (91) Flying glass
- (92) Other noncontact injury source (specify): \_\_\_\_\_

- (97) Injured, unknown source

**INJURY SOURCE CONFIDENCE LEVEL**

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

**DIRECT/INDIRECT INJURY**

- (1) Direct contact injury
- (2) Indirect contact injury
- (3) Noncontact injury
- (7) Injured, unknown source

**OCCUPANT INJURY CLASSIFICATION****O.I.C. Body Region**

- (M) Abdomen
- (Q) Ankle-foot
- (A) Arm (upper)
- (B) Back-thoracolumbar spine
- (C) Chest
- (E) Elbow
- (F) Face
- (R) Forearm
- (H) Head-skull
- (U) Injured, unknown region
- (K) Knee
- (L) Leg (lower)
- (Y) Lower limb(s) (whole or unknown part)
- (N) Neck-cervical spine
- (P) Pelvic-hip
- (S) Shoulder
- (T) Thigh
- (X) Upper limb(s) (whole or unknown part)
- (O) Whole body

(W) Wrist-hand

**Aspect of Injury**

- (A) Anterior-front
- (B) Bilateral (rib fracture only)
- (C) Central
- (I) Inferior-lower
- (U) Injured, unknown aspect
- (L) Left
- (P) Posterior-back
- (R) Right
- (S) Superior-upper
- (W) Whole region

**Lesion**

- (A) Abrasion
- (M) Amputation
- (V) Avulsion
- (B) Burn
- (K) Concussion
- (C) Contusion
- (N) Crush

(G) Detachment, separation

- (D) Dislocation
- (F) Fracture
- (Z) Fracture and dislocation
- (U) Injured, unknown lesion
- (L) Laceration
- (O) Other
- (P) Perforation, puncture
- (R) Rupture
- (S) Sprain
- (T) Strain
- (E) Total severance, transection

**System/Organ**

- (W) All systems in region
- (A) Arteries-veins
- (B) Brain
- (D) Digestive
- (E) Ears
- (O) Eye
- (H) Heart
- (U) Injured, unknown system

(I) Integumentary

- (J) Joints
- (K) Kidneys
- (L) Liver
- (M) Muscles
- (N) Nervous system
- (P) Pulmonary-lungs
- (R) Respiratory
- (S) Skeletal
- (C) Spinal cord
- (Q) Spleen
- (T) Thyroid, other endocrine gland
- (G) Urogenital
- (V) Vertebrae

**Abbreviated Injury Scale**

- (1) Minor injury
- (2) Moderate injury
- (3) Serious injury
- (4) Severe injury
- (5) Critical injury
- (6) Maximum (untreatable)
- (7) Injured, unknown severity